

July 7, 1989

Mr. Bryan D. Whitaker
Environmental Health Manager, Monitoring
Bureau of Air Quality
Utah Department of Health
261 West 500 South
Salt Lake City, Utah 84101

Dear Mr. Whitaker:

Intermountain Power Project (IPP)
Post-Construction Monitoring (PCM) Report

The IPP completed its second full year of post-construction Prevention of Significant Deterioration air quality and meteorological monitoring for the Intermountain Generating Station located in Delta, Utah. Per our telephone conversation with Mr. Rolf Doebebling of your staff on June 2, 1989, we understand that enough data have been submitted to satisfy the one-year air quality and meteorological monitoring requirements pursuant to the State of Utah Air Quality Approval Orders.

Field operations for the IPP PCM Program were discontinued as of June 1, 1989 with the exception of fine particulate (PM10) monitoring at Sites 1 and 2 and meteorological monitoring at Site 2. This data collection will continue on an every sixth-day sampling schedule until the cause of the June 20, 1988 PM10 federal standard excursion has been thoroughly investigated pursuant to the April 21, 1989 letter from Mr. F. Burnell Cordner, Executive Secretary, Utah Air Conservation Committee. We will be providing the State of Utah with further information regarding this excursion.

In order to complete the PCM Program, the following documents will be provided to the State:

- o First Quarter 1989 Report
- o April-May 1989 Report
- o Annual Report (which will encompass the period June 1986-May 1989)

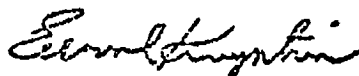
Mr. Bryan D. Whitaker

-2-

July 7, 1989

We appreciate your support during the course of the IPP PCM program. If you have any further questions regarding the program, please contact Ms. Jodean M. Igawa at (213) 481-8605.

Sincerely,



EDWARD KARAPETIAN
Manager of Environmental and
Governmental Affairs

JMI:jms

c: Mr. S. Gale Chapman
Mr. Craig Lucy

Ms. Jodean M. Igawa

bc: Gary T. Rose
Raymond C. Burt
Bruce E. Blowey
B. H. Fujikawa
I. Stein
G. R. Langewisch
D. Hyska

IPP Files
Vernon L. Pruett
C. W. Montoya
D. B. Whitney
Edward Karapetian
M. Yamada
N. Syed
R. T. Pelote

July 7, 1989

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Environmental Health Manager, Monitoring
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April 30, 1990

Mr. F. Burnell Cordner
Executive Secretary
Utah Air Conservation Committee
State of Utah
Department of Health
P. O. Box 16690
Salt Lake City, Utah 84116-0690

Dear Mr. Cordner:

Intermountain Power Project (IPP)
PM10 Monitoring Plan

Pursuant to your request, the enclosed report provides Chemical Mass Balance (CMB) analyses of various potential PM10 sources and of the filter sample from the June 20, 1988 PM10 episode in the vicinity of the Intermountain Generating Station (IGS). Our contractors for this work have been Dames & Moore, Desert Research Institute and NEA, Inc.

Specifically, eight potential PM10 sources were assessed utilizing the CMB model to determine the relationship between PM10 source constituents and the elemental composition of the ambient air particulate sample collected on June 20, 1988. The eight sources studied were:

- o soil dust;
- o coal dust;
- o limestone dust;
- o unpaved haul road dust;
- o paved road dust;
- o wood burning emissions;
- o vehicle emissions (diesel); and
- o vehicle emissions (unleaded).

Based upon the statistically based CMB modeling results, two dominant source types were identified as potential sources of the PM10 episode:

- o native soil dust; and,
- o residential woodburning.

April 30, 1990

Since residential woodburning in the IGS area was unlikely a cause of significant PM10 impacts, the CMB analysis was conducted for a second scenario which excluded residential woodburning as a source. Again, native soil dust was identified as the major PM10 contributor. To further support this CMB modeling result, an additional laboratory analysis of the ambient air PM10 filter was performed to measure elemental and organic carbon. The analytical procedure indicated organic carbon in measurable quantities and elemental carbon below detection levels. This result is consistent with the existence of soil dust (characterized by organic matter) and absence of coal dust (characterized by elemental carbon) on the ambient air filter.

We hope this information is adequate to attribute the PM10 episode to native soil, thereby completing the final requirement of our ambient air quality monitoring program. We believe that the multi-year program has demonstrated that operation of the IGS does not result in any significant deterioration of air quality and that the ambient impacts are almost immeasurably small.

If you require any additional information, please have your staff call Ms. Jodean M. Igawa at (213) 481-8605 or our ambient air monitoring consultant, Mr. Thomas A. Umenhofer, at (805) 685-4415.

Sincerely,

OFFICE OF
MANAGEMENT
by HSS

JOHN W. SCHUMANN

Manager of Research and Development

JMI:alg
Enclosure

c: Messrs. David Prey, State of Utah, Department of Health
Rolf Doebbling, State of Utah, Department of Health
Jeff Dean, State of Utah, Department of Health

Mr. Thomas Umenhofer, Dames & Moore

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B. H. Fujikawa
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A. A. Galindo
D. Hyska
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Vernon L. Pruett
D. B. Whitney
C. W. Montoya
J. W. Schumann
R. T. Pelote

FINAL REPORT (JUNE 1986-MAY 1989)
AIR QUALITY/METEOROLOGY DATA
INTERMOUNTAIN POWER PROJECT - SITES 1, 2 AND 3
INTERMOUNTAIN GENERATING STATION, DELTA, UTAH
LOS ANGELES DEPARTMENT OF WATER AND POWER

Prepared By:
DAMES & MOORE
Santa Barbara, California
August 3, 1989

 **DAMES & MOORE**

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1.0 INTRODUCTION

The Intermountain Power Project (IPP), a consortium of California, Utah and Nevada utilities, with approval from the Utah Bureau of Air Quality (UBAQ), the U.S. Environmental Protection Agency (EPA) Region VIII and the U.S. Department of Interior, constructed the 1,500-megawatt, coal-fired Intermountain Generating Station (IGS) at the Lynndyl site near Delta, Utah. The objective for operating an air quality monitoring data collection network was to establish the distribution and magnitude of IGS source emissions under simultaneously documented meteorological conditions.

1.1 AIR QUALITY AND METEOROLOGICAL PARAMETERS

The air quality and meteorological monitoring was performed from June 1986 through May 1989 and the program included the following parameters:

Site 1

- ° Total Suspended Particulates (TSP, Collocated Samplers);
- ° Fine Particulate Matter, 10 microns in diameter or less (PM10, Collocated Samplers);

Site 2

- ° Total Suspended Particulates (TSP);
- ° Fine Particulate Matter, 10 microns in diameter or less (PM10);
- ° Sulfur Dioxide (SO₂);
- ° Nitrogen Dioxide (NO₂);
- ° Horizontal Wind Speed;
- ° Horizontal Wind Direction;
- ° Standard Deviation of Horizontal Wind Direction (Sigma Theta);
- ° Temperature.

Site 3

- ° Fine Particulate Matter, 10 microns in diameter or less (PM10).
- ° Total Suspended Particulates (TSP);
- ° Sulfur Dioxide (SO₂);
- ° Nitrogen Dioxide (NO₂);
- ° Horizontal Wind Speed;
- ° Horizontal Wind Direction;
- ° Standard Deviation of Horizontal Wind Direction (Sigma Theta);
- ° Temperature.

Sulfur dioxide, nitrogen dioxide and meteorological data were sampled continuously and averaged hourly. TSP and PM₁₀ were sampled once every 6 days according to the national Hi-Vol sampling schedule and are reported as 24-hour averages. Site 1 consisted of collocated TSP and PM10 samplers.

1.2 AIR QUALITY AND METEOROLOGICAL INSTRUMENTATION

The air quality analyzers used are listed in the sections below and are either reference or equivalent method analyzers:

Sulfur Dioxide Analyzer

- ° Manufacturer - Thermo Electron Co.
- ° Model - TECO 43
- ° EPA Designation Number - EQSA-0276-009 (Equivalent Method)
- ° Range - 0-500 ppb

Nitrogen Oxides Analyzer

- ° Manufacturer - Thermo Electron Co.
- ° Model - 14 B/E
- ° EPA Designation Number - RFNA0179-035 (Reference Method)
- ° Range - 0-10 ppm

Total Suspended Particulates

- ° Manufacturer - General Metal Works
- ° Model - GMW-2310 Accu-Vol
- ° Measurement Technique - High Volume (EPA Reference Method)

Fine Particulate Matter (PM10)

- ° Manufacturer - General Metal Works
- ° Model - GMW 2310 Accu-Vol with Andersen SSI-10 micron 2-stage head
- ° Measurement Technique - High Volume

Meteorological Tower

- ° Manufacturer - Climatronics
- ° Model - C33 HD

Temperature

- ° Manufacturer - Climatronics
- ° Model - 100093 - probe, 1000087 - card
- ° Range - -40°F to +120°F

Wind Direction

- ° Manufacturer - Climatronics
- ° Model - F-460
- ° Threshold - 0.7 mph

Wind Speed

- ° Manufacturer - Climatronics
- ° Model - F-460
- ° Range - 0-125 mph

VOLUNTARY PROGRAM

Upper Level Winds and Mixing Height

- ° Manufacturer - Aerovironment, Inc.
- ° Model - 2000 Doppler Acoustic Sounder
- ° Wind Speed Range - 25 m/s, wind component
35 m/s, wind vector
3.7 m/s, vertical component
- ° Vertical Height Range - Operator - Selectable

Air quality and recording instruments for Sites 2 and 3 were housed in temperature controlled shelters (8'x16') manufactured by Scotsman Manufacturing Inc.. Heating and air conditioning were installed to maintain temperatures within tolerance limits of $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$. The shelters comply with all electrical codes and practices, and were used to house spare parts, consumables and records.

2.0 DATA SUMMARY AND TRENDS ANALYSIS

A summary of maximum short-term and annual average concentrations for criteria pollutants during the period June 1986 through May 1989 is provided in Tables 2.1 and 2.2. The data are presented on the basis of a monitoring year (i.e., June 1986 - May 1987).

Short-term and annual NO₂ and SO₂ concentrations were consistently low throughout the 3-year monitoring program. In general, NO₂ and SO₂ values for all averaging times were representative of typical background pollutant levels in rural areas.

The 24-hour and annual PM₁₀ and TSP concentrations demonstrated an upward trend during the program with the final year yielding the highest 24-hour and annual averages at all three sites. Note, however, that the June 1988 - May 1989 PM₁₀ and TSP data was significantly influenced by the June 20, 1988 particulate episode which has been attributed to rural fugitive dust. If the June 20, 1988 data were not considered, the 3-year PM₁₀ and TSP trend would have been steady or only slightly upward with maximum concentrations well below ambient air standards.

On a seasonal basis, the air quality and meteorological data collected during the June 1986 through May 1989 period demonstrated definite variation. The air quality parameters at Site 2 showed elevated concentrations occurred mid-morning to afternoon during the spring/summer months and evening to early morning during the winter months. Any concentrations experienced at Site 3 were limited in nature and showed no specific trend. The wind patterns also displayed a seasonal trend. Winds during the winter months (October - March) are predominantly from the east and during the summer months (April - September) the predominant winds are from the south/south-southwest.

The particulate samplers showed higher concentrations during the spring/summer months than in the winter months. This is to be expected in a region that experiences ground frost and snow cover. Particulate concentrations generally dropped off around November and began to rise again in

March. This trend is more noticeable at Sites 2 and 3 than at Site 1. Site 1 TSP and PM₁₀ concentrations were consistently higher than levels recorded at the other two monitoring locations.

TABLE 2.1

INTERMOUNTAIN POWER PROJECT
SUMMARY OF MAXIMUM SHORT-TERM CONCENTRATIONS
JUNE 1986 THROUGH MAY 1989

Location	Parameter	Averaging Time	Maximum Concentration ^a			Ambient Air Standards
			1986/1987	1987/1988	1988/1989	
Site 1	PM ₁₀ TSP	24-hrs	85 ug/m ³	80 ug/m ³	281 ug/m ³	50 ug/m ³
		24-hrs	129 ug/m ³	144 ug/m ³	407 ug/m ³	
Site 2	PM ₁₀ TSP	24-hrs	47 ug/m ³	60 ug/m ³	200 ug/m ³	50 ug/m ³
		24-hrs	65 ug/m ³	121 ug/m ³	369 ug/m ³	
	NO ₂ SO ₂	24-hrs	2 ppbm	1 ppbm	1 ppbm	--
		1-hr	2 ppbm	2 ppbm	3 ppbm	
	NO ₂ SO ₂	3-hrs	2 ppbm	1 ppbm	2 ppbm	50 ppbm
		24-hrs	1 ppbm	0 ppbm	0 ppbm	
Site 3	PM ₁₀ TSP	24-hrs	30 ug/m ³	45 ug/m ³	95 ug/m ³	50 ug/m ³
		24-hrs	79 ug/m ³	131 ug/m ³	132 ug/m ³	
	NO ₂ SO ₂	24-hrs	0 ppbm	1 ppbm	1 ppbm	--
		1-hr	1 ppbm	1 ppbm	2 ppbm	
	NO ₂ SO ₂	3-hrs	1 ppbm	1 ppbm	2 ppbm	50 ppbm
		24-hrs	0 ppbm	0 ppbm	1 ppbm	

150 ug/m³

^a Concentrations in micrograms per cubic meter (ug/m³) and in parts per hundred million (pphm).
^b -- no applicable standard

TABLE 2.2

INTERMOUNTAIN POWER PROJECT
SUMMARY OF ANNUAL AVERAGES
FOR SO₂, NO₂, TSP, and PM₁₀
JUNE 1986 THROUGH MAY 1989

Location	Parameter	Annual Concentration ^a			Ambient Air Standards
		1986/1987	1987/1988	1988/1989	
Site 1 ^b	PM ₁₀	20.6 ug/m ³	20.9 ug/m ³	37.0 ug/m ³	50 ug/m ³
	TSP	39.6 ug/m ³	39.5 ug/m ³	59.2 ug/m ³	-- ^c
Site 2	NO ₂	0 pphm	0 pphm	0 pphm	--
	SO ₂	0 pphm	0 pphm	0 pphm	3 pphm
	PM ₁₀	16.4 ug/m ³	13.3 ug/m ³	23.9 ug/m ³	50 ug/m ³
	TSP	24.7 ug/m ³	27.6 ug/m ³	36.8 ug/m ³	--
Site 3	NO ₂	0 pphm	0 pphm	0 pphm	--
	SO ₂	0 pphm	0 pphm	0 pphm	3 pphm
	PM ₁₀	14.3 ug/m ³	12.6 ug/m ³	17.8 ug/m ³	50 ug/m ³
	TSP	20.3 ug/m ³	23.8 ug/m ³	28.6 ug/m ³	--

^a Concentrations in micrograms per cubic meters (ug/m³) and parts per hundred million (pphm)

^b Concentrations shown for Site 1 represent the higher of the two colocated samplers

^c No applicable standard

3.0 DATA RECOVERY SUMMARY

The monthly and annual recovery rates for air quality, meteorological and particulate data are listed in Tables 3.1, 3.2, and 3.3 for the years June 1986 - May 1987, June 1987 - May 1988, and June 1988 - May 1989, respectively. In general, the overall air quality and meteorological recovery rates were high with all parameters meeting the State of Utah data recovery requirements for a period of at least one year.

Ten-meter meteorological data recovery rates at Site 2 were high throughout the period June 1986 through May 1989. The annual recovery rates exceeded 90% for each monitoring year. The Site 3 annual recovery rates exceeded 90% for the June 1986 - May 1987 and June 1988 - May 1989 monitoring years. Annual recovery rates for the year June 1987 - May 1988 exceeded 74%. The lower recovery rate was due to a malfunction of the wind direction sensor that affected data from February 25, 1988 to May 24, 1988.

Air quality analyzers performed well as shown by routine checks and calibrations. All annual recovery rates, with the exception of June 1987 - May 1988 NO₂ at Site 3, exceeded 80%. The June 1987 - May 1988 NO₂ recovery rate was affected by extreme shelter temperature fluctuations during May and April 1988 and analyzer malfunctions during August and September 1987. The June 1987 - May 1988 NO₂ recovery rate was 79.1%.

The TSP recovery rates for June 1986-May 1987 and June 1987-May 1988 exceeded 80% at all sites. The TSP annual averages for June 1988-May 1989 exceeded 50% at all sites. The TSP data recovery rate for June 1988-May 1989 were low due to operator error. The PM₁₀ recovery rates for June 1987-May 1988 exceeded 90%. The PM₁₀ recovery rates for June 1986-May 1987 were low due to the incorrect setting of the flow controller which caused the sampler flow to exceed manufacturer specification. The June 1986-May 1987 recovery rates exceeded 45% at all sites. The PM₁₀ recovery rates for June 1988-May 1989 exceeded 42% at all sites. These low recovery rates were due to operator errors.

TABLE 3.1

INTERMOUNTAIN POWER PROJECT
MONTHLY AND QUARTERLY RECOVERY RATES
JUNE 1986 THROUGH MAY 1987

Site 1	Jun.	July	Aug.	Qtr.	Sept.	Oct.	Nov.	Qtr.	Dec.	Jan.	Feb.	Qtr.	Mar.	Apr.	May	Qtr.	Yearly
TSP-1A	66.7	83.3	80.0	81.3	100.0	100.0	100.0	100.0	100.0	80.0	80.0	86.7	100.0	80.0	100.0	93.3	90.2
TSP-1B	66.7	100.0	100.0	81.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	80.0	100.0	93.3	96.7
<u>Voluntary Program</u>																	
PM10-1A	66.7	100.0	80.0	87.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	20.0	60.0	60.0	86.9
PM10-1B	66.7	83.3	40.0	68.8	100.0	0.0	0.0	33.3	0.0	60.0	100.0	53.3	100.0	60.0	80.0	80.0	59.0
<u>Site 2</u>																	
NO2	94.6	87.4	90.1	90.6	93.6	92.1	93.6	93.1	95.3	94.2	90.6	93.5	94.2	95.0	93.3	94.2	92.8
SO2	94.6	87.4	90.1	90.6	93.6	92.1	93.6	93.1	95.3	94.2	90.6	93.5	94.2	95.0	93.3	94.2	92.8
Wind Speed Avg.	99.3	91.8	94.4	95.1	98.2	96.2	99.3	97.9	100.0	99.5	98.8	99.4	99.9	100.0	99.1	99.6	98.0
Wind Speed Res.	99.3	90.9	92.9	94.3	94.6	95.7	98.6	96.3	100.0	98.8	98.8	99.2	98.4	92.8	96.4	95.8	96.4
Wind Direction Avg.	99.3	91.8	94.4	95.1	98.2	96.2	99.3	97.9	100.0	99.5	98.8	99.4	99.9	100.0	99.1	99.6	98.0
Wind Direction Res.	99.3	90.9	92.9	94.3	94.6	95.7	98.6	96.3	100.0	98.8	98.8	99.2	98.4	92.8	96.4	95.8	96.4
Sigma-cheta	99.3	90.9	92.9	94.3	94.6	95.7	98.6	96.3	100.0	98.8	98.8	99.2	98.4	92.8	96.4	95.8	96.4
Temperature	99.3	91.8	94.4	95.1	98.2	96.2	99.3	97.9	100.0	99.5	98.8	99.4	99.9	100.0	99.1	99.6	98.0
TSP	100.0	100.0	40.0	81.3	80.0	80.0	40.0	66.7	100.0	80.0	100.0	93.3	80.0	80.0	100.0	93.3	83.6
<u>Voluntary Program</u>																	
PM10	100.0	100.0	60.0	87.5	100.0	0.0	0.0	33.3	0.0	60.0	100.0	53.3	100.0	0.0	20.0	46.7	55.7
Doppler Acoustic Sounder	38.3	7.3	36.7	27.3	38.1	50.5	70.6	53.0	76.9	72.4	65.3	71.8	86.3	96.4	92.5	91.7	60.9
<u>Site 3</u>																	
NO2	53.6	81.2	63.2	66.1	58.7	93.4	94.3	86.5	94.4	75.7	92.9	87.5	94.5	94.6	95.2	94.7	82.6
SO2	40.3	80.5	89.1	70.3	91.8	93.1	90.1	83.3	93.7	96.6	60.1	84.3	56.5	86.5	95.3	79.3	81.4
Wind Speed Avg.	97.6	98.4	99.9	98.6	98.9	99.5	99.9	96.6	93.1	100.0	100.0	97.6	100.0	100.0	99.7	99.9	98.9
Wind Speed Res.	97.6	98.4	99.9	98.6	98.9	99.5	99.9	96.6	93.1	100.0	100.0	97.6	100.0	100.0	99.7	99.9	98.9
Wind Direction Avg.	97.8	98.7	99.9	98.8	98.9	100.0	99.9	97.6	96.2	100.0	99.9	98.7	97.8	100.0	99.7	99.9	99.2
Wind Direction Res.	97.8	98.7	99.9	98.8	98.9	100.0	99.9	97.6	96.2	100.0	99.9	98.7	97.8	100.0	99.7	99.9	99.2
Sigma-cheta	97.8	98.7	99.9	98.8	98.9	100.0	99.9	97.6	96.2	100.0	99.9	98.7	97.8	100.0	99.7	99.9	99.2
Temperature	97.6	98.1	99.9	98.6	98.9	94.4	99.2	90.6	81.0	100.0	93.9	91.6	97.8	100.0	99.7	99.9	99.0
TSP	100.0	100.0	100.0	100.0	100.0	100.0	80.0	93.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.4
<u>Voluntary Program</u>																	
PM10	100.0	66.7	80.0	81.3	100.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	60.0	60.0	80.0	66.7	45.9

TABLE 3.2
INTERMOUNTAIN POWER PROJECT
MONTHLY AND QUARTERLY RECOVERY RATES
JUNE 1987 THROUGH MAY 1988

Site 1	Jun.	July	Aug.	Qtr.	Sept.	Oct.	Nov.	Qtr.	Dec.	Jan.	Feb.	Qtr.	Mar.	Apr.	May	Qtr.	Yearly
TSP-1A	80.0	100.0	100.0	93.8	100.0	100.0	80.0	93.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	96.7
TSP-1B	100.0	80.0	100.0	93.8	100.0	100.0	80.0	93.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	96.7
<u>Voluntary Program</u>																	
PM10-1A	80.0	60.0	100.0	86.7	100.0	100.0	80.0	93.3	100.0	100.0	80.0	93.3	100.0	100.0	80.0	93.3	90.2
PM10-1B	80.0	100.0	100.0	93.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	80.0	93.3	98.4
55.7																	
Site 2	Jun.	July	Aug.	Qtr.	Sept.	Oct.	Nov.	Qtr.	Dec.	Jan.	Feb.	Qtr.	Mar.	Apr.	May	Qtr.	Yearly
NO2	83.2	94.4	91.7	89.8	94.6	94.4	93.2	94.0	90.7	95.2	92.4	92.8	93.3	93.3	91.8	92.8	92.3
SO2	85.4	94.4	93.8	91.3	94.6	94.4	93.3	94.1	90.7	95.2	92.5	92.8	93.3	93.3	91.4	91.7	92.7
Wind Speed Avg.	90.6	99.6	99.7	96.7	100.0	100.0	99.2	99.7	96.8	100.0	99.9	98.9	100.0	98.9	89.1	98.0	97.8
Wind Speed Res.	88.5	99.6	99.7	96.0	100.0	100.0	99.2	99.7	96.8	100.0	99.6	98.8	95.6	98.9	86.6	93.6	97.0
Wind Direction Avg.	90.6	99.6	99.7	96.0	100.0	100.0	99.2	99.7	96.8	100.0	99.6	98.8	95.6	98.9	86.6	93.6	97.0
Wind Direction Res.	88.5	99.6	99.7	96.0	100.0	100.0	99.2	99.7	96.8	100.0	99.6	98.8	95.6	98.9	86.6	93.6	97.0
Sigma-theta	88.5	99.6	99.7	96.0	100.0	100.0	99.2	99.7	96.8	100.0	99.6	98.8	95.6	98.9	86.6	93.6	97.0
Temperature	90.6	99.6	99.7	96.7	100.0	100.0	99.2	99.7	96.8	100.0	99.9	98.9	100.0	98.9	99.7	99.5	98.7
TSP	100.0	100.0	100.0	100.0	100.0	80.0	100.0	93.3	100.0	60.0	100.0	86.7	100.0	100.0	100.0	100.0	95.1
<u>Voluntary Program</u>																	
PM10	80.0	100.0	100.0	93.8	100.0	100.0	100.0	100.0	100.0	100.0	80.0	80.0	100.0	100.0	100.0	100.0	93.4
Doppler Acoustic Sounder	71.5	72.0	45.7	63.0	79.2	99.6	95.8	91.6	70.7	41.9	96.6	69.1	66.4	59.9	74.5	66.7	72.6
Site 3	Jun.	July	Aug.	Qtr.	Sept.	Oct.	Nov.	Qtr.	Dec.	Jan.	Feb.	Qtr.	Mar.	Apr.	May	Qtr.	Yearly
NO2	94.6	94.9	71.4	86.9	58.3	82.7	86.7	76.0	88.8	90.7	84.6	88.1	49.2	54.7	91.9	65.4	79.1
SO2	94.7	94.9	88.0	92.5	90.8	82.7	86.8	86.7	89.1	90.7	84.6	88.2	49.2	53.3	83.2	62.0	82.3
Wind Speed Avg.	99.4	100.0	98.9	99.5	99.4	97.7	99.7	99.9	100.0	100.0	99.3	99.8	100.0	99.9	99.6	99.8	99.5
Wind Speed Res.	95.8	99.9	98.9	98.2	96.0	95.7	99.7	97.1	100.0	100.0	83.8	94.8	0.0	0.0	23.7	8.0	74.4
Wind Direction Avg.	99.4	100.0	98.9	99.5	98.9	97.7	99.7	98.8	100.0	100.0	84.5	93.1	0.0	0.0	23.7	8.0	75.2
Wind Direction Res.	95.8	99.9	98.9	98.2	96.0	95.7	99.7	97.1	100.0	100.0	83.8	94.8	0.0	0.0	23.7	8.0	74.4
Sigma-theta	95.8	99.9	98.9	98.2	96.0	95.7	99.7	97.1	100.0	100.0	83.8	94.8	0.0	0.0	23.7	8.0	74.4
Temperature	99.4	100.0	98.9	99.5	99.4	97.7	99.7	98.9	100.0	100.0	97.1	99.1	100.0	99.9	99.5	99.8	99.3
TSP	100.0	100.0	66.7	87.5	100.0	100.0	80.0	93.3	100.0	80.0	100.0	93.3	100.0	100.0	100.0	100.0	93.4
<u>Voluntary Program</u>																	
PM10	100.0	100.0	33.3	75.0	100.0	100.0	100.0	100.0	100.0	80.0	100.0	93.3	100.0	100.0	80.0	93.3	90.2

TABLE 3.3

INTERMOUNTAIN POWER PROJECT
MONTHLY AND QUARTERLY RECOVERY RATES
JUNE 1988 THROUGH MAY 1989

Site 1	Jun.	July	Aug.	Qtr.	Sept.	Oct.	Nov.	Qtr.	Dec.	Jan.	Feb.	Qtr.	Mar.	Apr.	May	Qtr.	Yearly
TSP-1A	20.0	40.0	66.8	43.8	80.0	20.0	40.0	46.7	40.0	0.0	60.0	33.3	100.0	60.0	100.0	86.7	52.5
TSP-1B	80.0	80.0	66.8	75.0	60.0	80.0	40.0	60.0	40.0	0.0	20.0	20.0	80.0	60.0	100.0	80.0	59.0
<u>Voluntary Program</u>																	
PM10-1A	60.0	80.0	33.3	56.3	20.0	0.0	0.0	6.7	0.0	0.0	60.0	20.0	100.0	60.0	100.0	86.7	42.6
PM10-1B	80.0	60.0	50.0	62.5	40.0	0.0	20.0	20.0	0.0	0.0	40.0	13.3	100.0	60.0	100.0	86.7	45.9
<u>Site 2</u>																	
NO ₂	94.0	94.1	90.5	92.6	94.4	95.2	94.9	94.8	94.2	94.9	95.1	94.7	93.8	95.1	92.1	93.7	94.0
SO ₂	94.0	94.1	94.0	94.0	94.0	95.3	94.9	94.9	94.5	94.9	95.1	94.8	93.8	95.1	92.2	93.7	94.3
Wind Speed Avg.	100.0	99.9	99.9	99.9	99.9	100.0	100.0	100.0	99.7	100.0	100.0	99.9	100.0	100.0	67.9	89.2	97.2
Wind Speed Res.	100.0	99.9	99.2	99.7	99.9	100.0	100.0	100.0	98.9	100.0	100.0	99.6	95.7	100.0	66.8	87.4	96.6
Wind Direction Avg.	100.0	99.9	99.9	99.9	99.9	100.0	100.0	100.0	99.6	100.0	100.0	99.9	100.0	100.0	97.3	99.1	99.7
Wind Direction Res.	100.0	99.9	99.2	99.7	99.9	100.0	100.0	100.0	98.9	100.0	100.0	99.6	95.7	100.0	66.8	87.4	96.6
Sigma-theta	100.0	99.9	99.2	99.7	99.9	100.0	100.0	100.0	99.1	100.0	100.0	99.7	95.7	100.0	96.2	97.3	99.1
Temperature	100.0	100.0	99.9	100.0	99.9	100.0	100.0	100.0	99.7	100.0	100.0	99.9	100.0	100.0	97.3	99.1	99.7
TSP	100.0	100.0	83.3	93.6	80.0	60.0	20.0	53.3	40.0	0.0	40.0	26.7	100.0	60.0	100.0	86.7	65.6
<u>Voluntary Program</u>																	
PM10	100.0	100.0	83.3	93.8	20.0	60.0	20.0	33.3	0.0	0.0	60.0	20.0	100.0	60.0	100.0	86.7	59.0
Doppler Acoustic Sounder	96.8	86.6	75.0	86.0	64.3												
<u>Site 3</u>																	
NO ₂	93.7	93.8	94.1	93.9	93.6	95.0	94.4	94.4	94.8	94.9	95.1	94.7	93.8	95.1	92.1	93.7	94.0
SO ₂	93.7	93.4	94.4	93.8	93.9	95.0	94.4	94.4	94.5	94.9	95.1	94.8	93.8	95.1	92.2	93.7	94.3
Wind Speed Avg.	99.6	99.5	99.7	99.6	99.4	100.0	99.7	99.7	99.7	99.7	99.7	99.6	98.8	99.7	99.6	98.7	92.0
Wind Speed Res.	99.6	99.5	99.7	99.6	99.4	100.0	98.9	99.5	99.7	99.7	99.7	99.6	98.8	99.7	99.6	98.7	92.0
Wind Direction Avg.	99.6	99.5	99.7	99.6	99.4	100.0	98.9	99.5	99.7	99.7	99.7	99.6	98.8	99.7	99.6	98.7	92.0
Wind Direction Res.	99.6	99.5	99.7	99.6	99.4	100.0	98.9	99.5	99.7	99.7	99.7	99.6	98.8	99.7	99.6	98.7	92.0
Sigma-theta	99.6	99.5	99.7	99.6	99.4	100.0	98.9	99.5	99.7	99.7	99.7	99.6	98.8	99.7	99.6	98.7	92.0
Temperature	99.6	99.5	99.7	99.6	99.4	100.0	98.9	99.5	99.7	99.7	99.7	99.6	98.8	99.7	99.6	98.7	92.0
TSP	100.0	100.0	100.0	100.0	80.0	60.0	0.0	46.7	20.0	0.0	60.0	26.7	100.0	60.0	100.0	86.7	65.6
<u>Voluntary Program</u>																	
PM10	80.0	60.0	66.7	68.8	40.0	60.0	0.0	33.3	20.0	0.0	40.0	20.0	100.0	60.0	60.0	73.3	49.2

APPENDIX 1

TABULAR METEOROLOGICAL JOINT FREQUENCY DISTRIBUTIONS
AND METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION PLOTS
FOR SITE 2

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1986 THROUGH MAY 31, 1987
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	93	244	82	0	0	419	3.02
NE	117	229	102	1	0	449	3.07
ENE	117	261	161	3	0	542	3.21
E	138	583	259	6	0	986	3.31
ESE	129	325	111	3	0	568	2.98
SE	121	208	83	6	0	418	2.95
SSE	106	200	317	15	0	638	4.02
S	115	294	438	91	5	943	4.70
SSW	94	215	284	96	20	709	5.11
SW	88	104	104	43	1	340	4.26
WSW	96	97	13	3	0	209	2.36
W	80	89	17	0	0	186	2.44
WNW	83	122	17	3	0	225	2.52
NW	95	244	190	35	1	565	4.00
NNW	83	300	361	38	4	786	4.34
N	94	266	97	4	0	461	3.18
CALM						1	
TOTAL	1649	3781	2636	347	31	8445	3.71

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 315
NUMBER OF VALID OBSERVATIONS = 8445

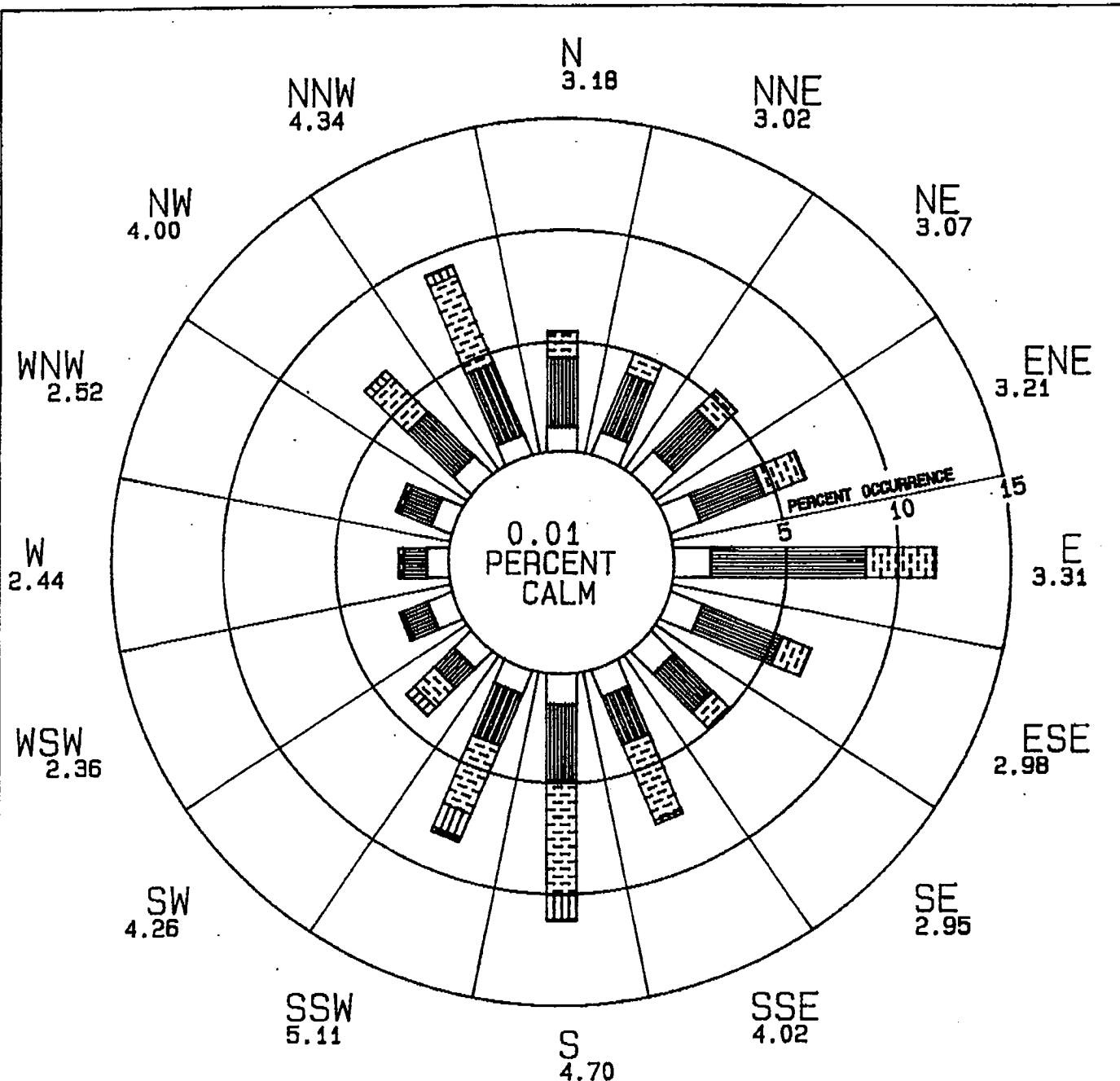
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1986 THROUGH MAY 31, 1987
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00	TOTAL	MEAN SPEED
NNE	1.10	2.89	.97	.00	.00	4.96	3.02
NE	1.39	2.71	1.21	.01	.00	5.32	3.07
ENE	1.39	3.09	1.91	.04	.00	6.42	3.21
E	1.63	6.90	3.07	.07	.00	11.68	3.31
ESE	1.53	3.85	1.31	.04	.00	6.73	2.98
SE	1.43	2.46	.98	.07	.00	4.95	2.95
SSE	1.26	2.37	3.75	.18	.00	7.55	4.02
S	1.36	3.48	5.19	1.08	.06	11.17	4.70
SSW	1.11	2.55	3.36	1.14	.24	8.40	5.11
SW	1.04	1.23	1.23	.51	.01	4.03	4.26
WSW	1.14	1.15	.15	.04	.00	2.47	2.36
W	.95	1.05	.20	.00	.00	2.20	2.44
WNW	.98	1.44	.20	.04	.00	2.66	2.52
NW	1.12	2.89	2.25	.41	.01	6.69	4.00
NNW	.98	3.55	4.27	.45	.05	9.31	4.34
N	1.11	3.15	1.15	.05	.00	5.46	3.18
CALM						.01	
TOTAL	19.53	44.77	31.21	4.11	.37	100.00	3.71

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 315
NUMBER OF VALID OBSERVATIONS = 8445



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE

	0 - 2	M/S
	2 - 4	
	4 - 8	
	8 - 12	
	>12	

LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 2 - ANNUAL 1986 - 1987

WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	25	116	52	0	0	193	3.38
NE	34	118	86	1	0	239	3.61
ENE	33	114	139	3	0	289	3.84
E	37	217	131	4	0	389	3.61
ESE	34	145	58	3	0	240	3.29
SE	38	115	48	6	0	207	3.34
SSE	31	93	247	15	0	386	4.68
S	25	170	319	66	5	585	5.21
SSW	16	142	252	87	19	516	5.84
SW	20	81	81	38	1	221	4.99
WSW	20	63	8	2	0	93	2.84
W	18	53	11	0	0	82	2.98
WNW	17	64	10	2	0	93	2.96
NW	22	73	70	16	0	181	4.44
NNW	22	76	133	13	3	247	4.81
N	31	101	52	2	0	186	3.44
CALM						0	
TOTAL	423	1741	1697	258	28	4147	4.31

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 245
NUMBER OF VALID OBSERVATIONS = 4147

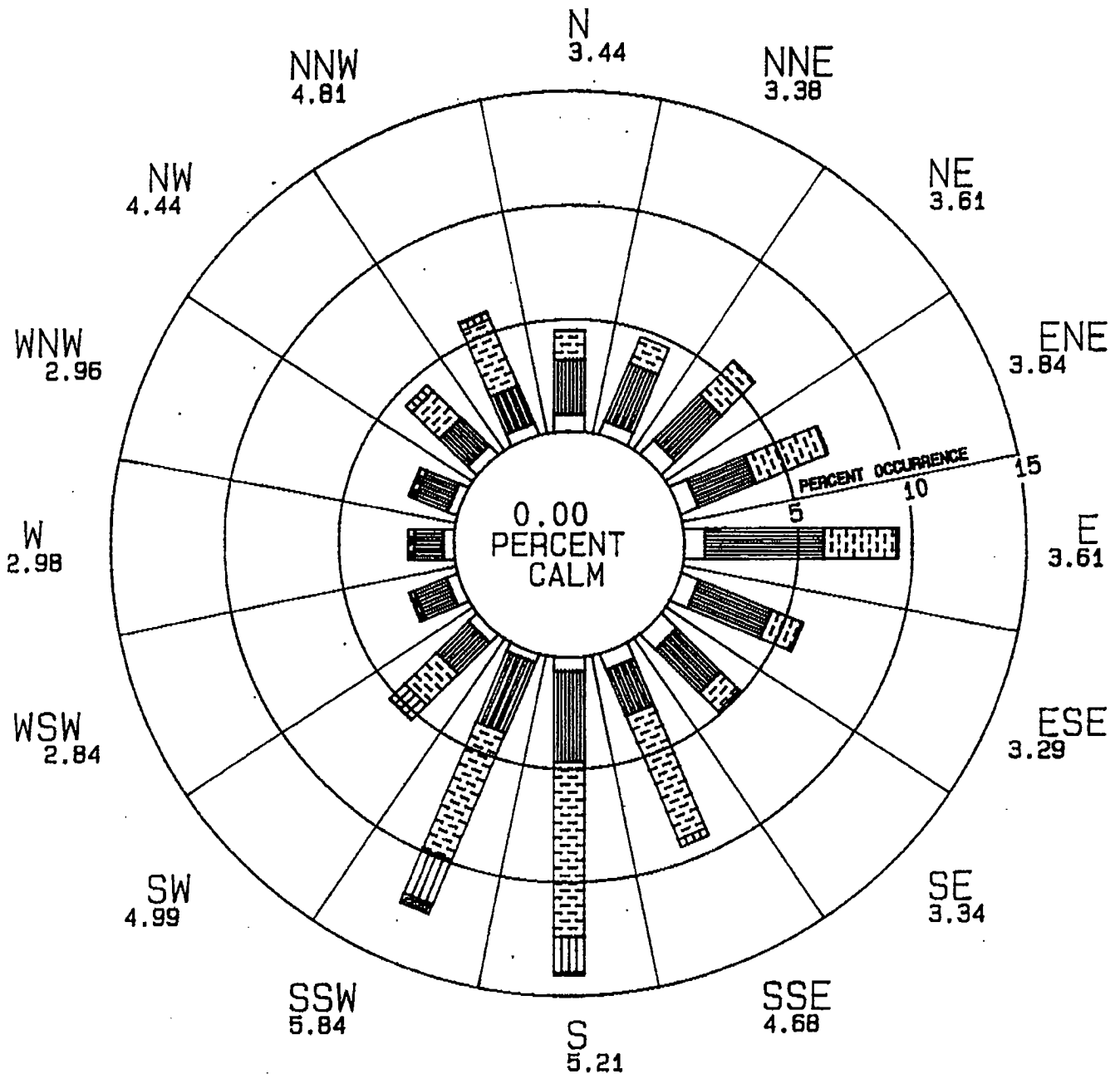
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

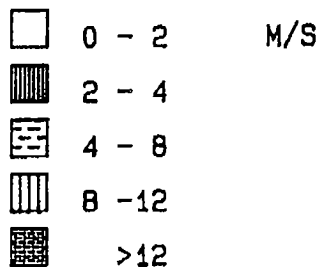
WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.60	2.80	1.25	.00	.00	4.65	3.38
NE	.82	2.85	2.07	.02	.00	5.76	3.61
ENE	.80	2.75	3.35	.07	.00	6.97	3.84
E	.89	5.23	3.16	.10	.00	9.38	3.61
ESE	.82	3.50	1.40	.07	.00	5.79	3.29
SE	.92	2.77	1.16	.14	.00	4.99	3.34
SSE	.75	2.24	5.96	.36	.00	9.31	4.68
S	.60	4.10	7.69	1.59	.12	14.11	5.21
SSW	.39	3.42	6.08	2.10	.46	12.44	5.84
SW	.48	1.95	1.95	.92	.02	5.33	4.99
WSW	.48	1.52	.19	.05	.00	2.24	2.84
W	.43	1.28	.27	.00	.00	1.98	2.98
WNW	.41	1.54	.24	.05	.00	2.24	2.96
NW	.53	1.76	1.69	.39	.00	4.36	4.44
NNW	.53	1.83	3.21	.31	.07	5.96	4.81
N	.75	2.44	1.25	.05	.00	4.49	3.44
CALM						.00	
TOTAL	10.20	41.98	40.92	6.22	.68	100.00	4.31

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 245
NUMBER OF VALID OBSERVATIONS = 4147



WIND SPEED RANGE



LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 2 - 1986/1987

SUMMER (APRIL - SEPTEMBER)
WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1986 THROUGH MAR 31, 1987
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	68	128	30	0	0	226	2.72
NE	83	111	16	0	0	210	2.46
ENE	84	147	22	0	0	253	2.49
E	101	366	128	2	0	597	3.11
ESE	95	180	53	0	0	328	2.76
SE	83	93	35	0	0	211	2.57
SSE	75	107	70	0	0	252	3.02
S	90	124	119	25	0	358	3.85
SSW	78	73	32	9	1	193	3.14
SW	68	23	23	5	0	119	2.89
WSW	76	34	5	1	0	116	1.97
W	62	36	6	0	0	104	2.02
WNW	66	58	7	1	0	132	2.21
NW	73	171	120	19	1	384	3.79
NNW	61	224	228	25	1	539	4.13
N	63	165	45	2	0	275	3.00
CALM						1	
TOTAL	1226	2040	939	89	3	4298	3.12

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 70
NUMBER OF VALID OBSERVATIONS = 4298

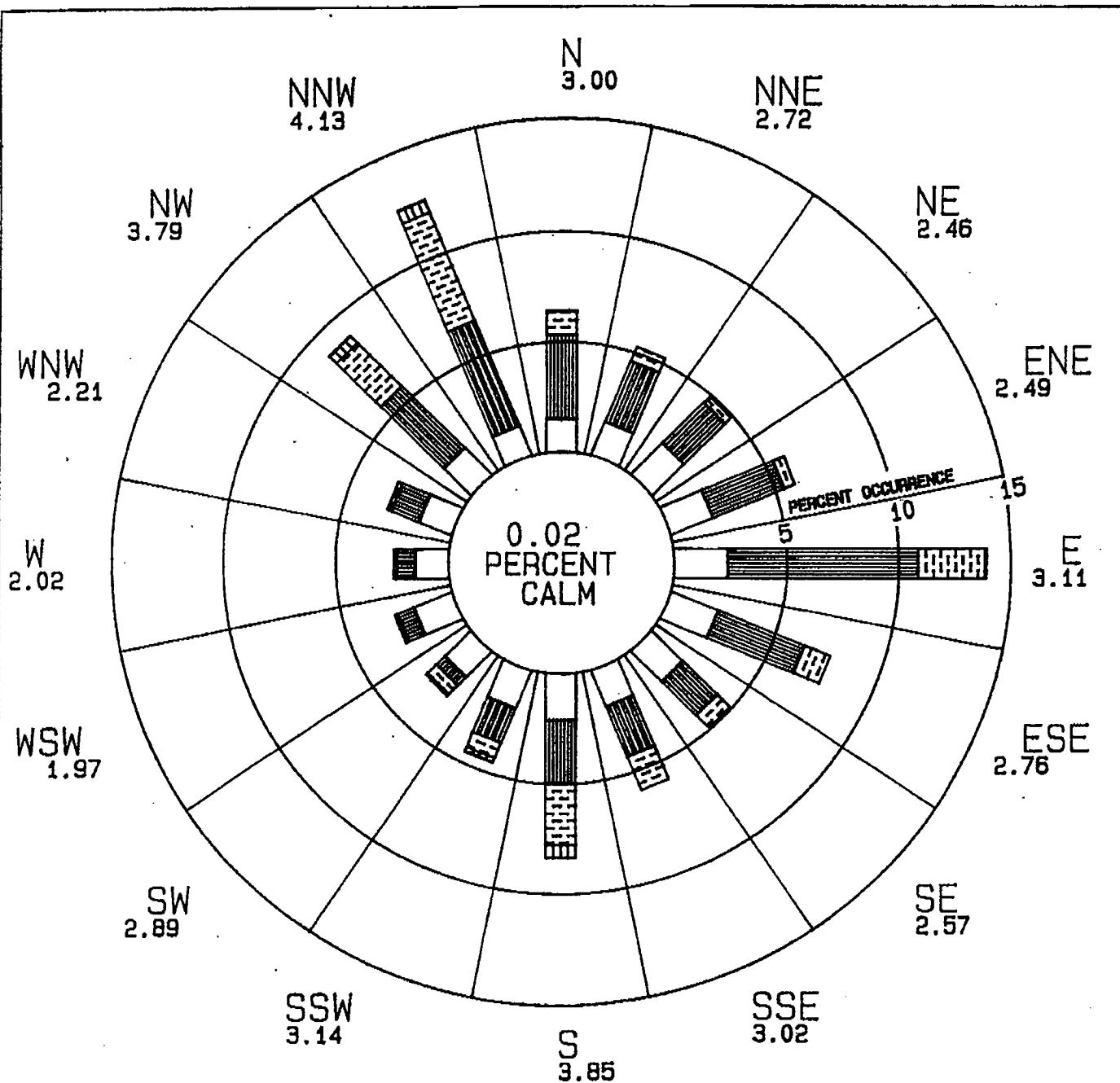
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1986 THROUGH MAR 31, 1987
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	1.58	2.98	.70	.00	.00	5.26	2.72
NE	1.93	2.58	.37	.00	.00	4.89	2.46
ENE	1.95	3.42	.51	.00	.00	5.89	2.49
E	2.35	8.52	2.98	.05	.00	13.89	3.11
ESE	2.21	4.19	1.23	.00	.00	7.63	2.76
SE	1.93	2.16	.81	.00	.00	4.91	2.57
SSE	1.74	2.49	1.63	.00	.00	5.86	3.02
S	2.09	2.89	2.77	.58	.00	8.33	3.85
SSW	1.81	1.70	.74	.21	.02	4.49	3.14
SW	1.58	.54	.54	.12	.00	2.77	2.89
WSW	1.77	.79	.12	.02	.00	2.70	1.97
W	1.44	.84	.14	.00	.00	2.42	2.02
WNW	1.54	1.35	.16	.02	.00	3.07	2.21
NW	1.70	3.98	2.79	.44	.02	8.93	3.79
NNW	1.42	5.21	5.30	.58	.02	12.54	4.13
N	1.47	3.84	1.05	.05	.00	6.40	3.00
CALM						.02	
TOTAL	28.52	47.46	21.85	2.07	.07	100.00	3.12

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 70
NUMBER OF VALID OBSERVATIONS = 4298



WIND SPEED RANGE

	0 - 2	M/S
	2 - 4	
	4 - 8	
	8 - 12	
	>12	

LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 2 - 1986/1987

WINTER (OCTOBER - MARCH)
WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1987 THROUGH MAY 31, 1988
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	106	209	74	6	0	395	3.00
NE	134	256	110	0	0	500	2.92
ENE	144	276	126	1	0	547	2.97
E	170	554	255	3	0	982	3.17
ESE	177	439	138	0	0	754	2.92
SE	132	257	83	6	0	478	2.91
SSE	134	231	235	7	3	610	3.63
S	118	323	394	64	3	902	4.43
SSW	97	256	253	120	16	742	4.94
SW	105	118	75	42	9	349	4.07
WSW	104	113	20	4	0	241	2.59
W	89	110	12	3	0	214	2.46
WNW	74	100	26	4	0	204	2.65
NW	85	206	173	29	2	495	4.05
NNW	81	230	288	103	14	716	4.99
N	86	180	115	12	0	393	3.57
CALM						0	
TOTAL	1836	3858	2377	404	47	8522	3.63

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 262
NUMBER OF VALID OBSERVATIONS = 8522

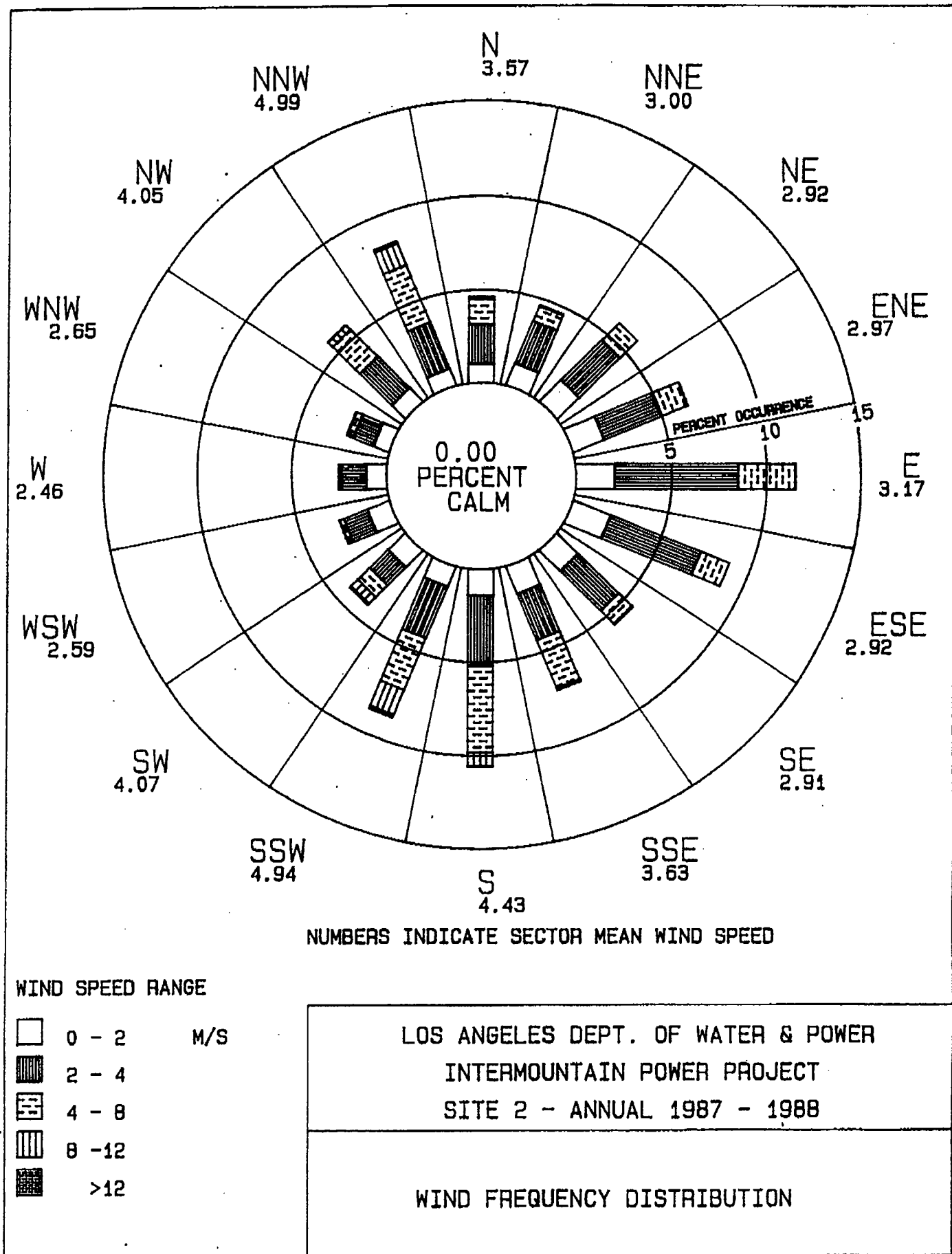
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1987 THROUGH MAY 31, 1988
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	1.24	2.45	.87	.07	.00	4.64	3.00
NE	1.57	3.00	1.29	.00	.00	5.87	2.92
ENE	1.69	3.24	1.48	.01	.00	6.42	2.97
E	1.99	6.50	2.99	.04	.00	11.52	3.17
ESE	2.08	5.15	1.62	.00	.00	8.85	2.92
SE	1.55	3.02	.97	.07	.00	5.61	2.91
SSE	1.57	2.71	2.76	.08	.04	7.16	3.63
S	1.38	3.79	4.62	.75	.04	10.58	4.43
SSW	1.14	3.00	2.97	1.41	.19	8.71	4.94
SW	1.23	1.38	.88	.49	.11	4.10	4.07
WSW	1.22	1.33	.23	.05	.00	2.83	2.59
W	1.04	1.29	.14	.04	.00	2.51	2.46
WNW	.87	1.17	.31	.05	.00	2.39	2.65
NW	1.00	2.42	2.03	.34	.02	5.81	4.05
NNW	.95	2.70	3.38	1.21	.16	8.40	4.99
N	1.01	2.11	1.35	.14	.00	4.61	3.57
CALM						.00	
TOTAL	21.54	45.27	27.89	4.74	.55	100.00	3.63

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 262
NUMBER OF VALID OBSERVATIONS = 8522



LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	35	103	46	1	0	185	3.22
NE	32	145	88	0	0	265	3.36
ENE	45	127	106	1	0	279	3.48
E	33	201	139	3	0	376	3.57
ESE	49	177	79	0	0	305	3.27
SE	30	118	54	6	0	208	3.41
SSE	37	119	171	6	3	336	4.23
S	23	159	288	51	3	524	5.09
SSW	18	149	219	109	16	511	5.84
SW	19	89	69	41	9	227	5.21
WSW	16	84	18	3	0	121	3.36
W	24	85	10	0	0	119	2.77
WNW	15	63	19	4	0	101	3.39
NW	22	105	91	10	2	230	4.18
NNW	24	104	95	37	5	265	4.79
N	23	73	45	3	0	144	3.62
CALM						0	
TOTAL	445	1901	1537	275	38	4196	4.19

NUMBERS BELOW BASED ON ALL OBSERVATIONS

NUMBER OF INVALID OBSERVATIONS = 196

NUMBER OF VALID OBSERVATIONS = 4196

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.83	2.45	1.10	.02	.00	4.41	3.22
NE	.76	3.46	2.10	.00	.00	6.32	3.36
ENE	1.07	3.03	2.53	.02	.00	6.65	3.48
E	.79	4.79	3.31	.07	.00	8.96	3.57
ESE	1.17	4.22	1.88	.00	.00	7.27	3.27
SE	.71	2.81	1.29	.14	.00	4.96	3.41
SSE	.88	2.84	4.08	.14	.07	8.01	4.23
S	.55	3.79	6.86	1.22	.07	12.49	5.09
SSW	.43	3.55	5.22	2.60	.38	12.18	5.84
SW	.45	2.12	1.64	.98	.21	5.41	5.21
WSW	.38	2.00	.43	.07	.00	2.88	3.36
W	.57	2.03	.24	.00	.00	2.84	2.77
WNW	.36	1.50	.45	.10	.00	2.41	3.39
NW	.52	2.50	2.17	.24	.05	5.48	4.18
NNW	.57	2.48	2.26	.88	.12	6.32	4.79
N	.55	1.74	1.07	.07	.00	3.43	3.62
CALM						.00	
TOTAL	10.61	45.31	36.63	6.55	.91	100.00	4.19

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 196
NUMBER OF VALID OBSERVATIONS = 4196

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1987 THROUGH MAR 31, 1988
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	71	106	28	5	0	210	2.81
NE	102	111	22	0	0	235	2.43
ENE	99	149	20	0	0	268	2.45
E	137	353	116	0	0	606	2.92
ESE	128	262	59	0	0	449	2.69
SE	102	139	29	0	0	270	2.52
SSE	97	112	64	1	0	274	2.88
S	95	164	106	13	0	378	3.51
SSW	79	107	34	11	0	231	2.96
SW	86	29	6	1	0	122	1.95
WSW	88	29	2	1	0	120	1.81
W	65	25	2	3	0	95	2.08
WNW	59	37	7	0	0	103	1.94
NW	63	101	82	19	0	265	3.93
NNW	57	126	193	66	9	451	5.10
N	63	107	70	9	0	249	3.55
CALM						0	
TOTAL	1391	1957	840	129	9	4326	3.09

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 66
NUMBER OF VALID OBSERVATIONS = 4326

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1987 THROUGH MAR 31, 1988
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

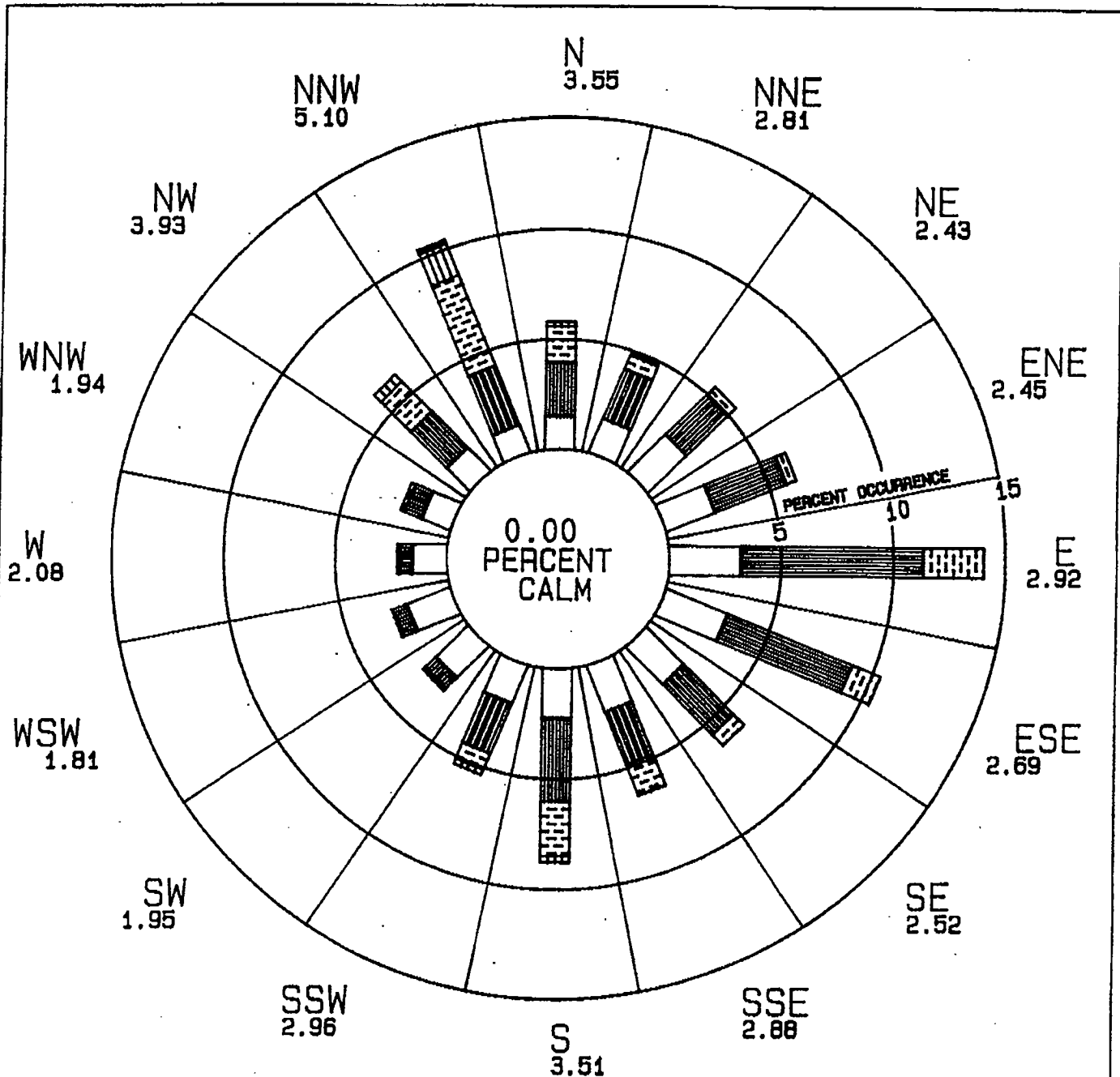
WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	1.64	2.45	.65	.12	.00	4.85	2.81
NE	2.36	2.57	.51	.00	.00	5.43	2.43
ENE	2.29	3.44	.46	.00	.00	6.20	2.45
E	3.17	8.16	2.68	.00	.00	14.01	2.92
ESE	2.96	6.06	1.36	.00	.00	10.38	2.69
SE	2.36	3.21	.67	.00	.00	6.24	2.52
SSE	2.24	2.59	1.48	.02	.00	6.33	2.88
S	2.20	3.79	2.45	.30	.00	8.74	3.51
SSW	1.83	2.47	.79	.25	.00	5.34	2.96
SW	1.99	.67	.14	.02	.00	2.82	1.95
WSW	2.03	.67	.05	.02	.00	2.77	1.81
W	1.50	.58	.05	.07	.00	2.20	2.08
WNW	1.36	.86	.16	.00	.00	2.38	1.94
NW	1.46	2.33	1.90	.44	.00	6.13	3.93
NNW	1.32	2.91	4.46	1.53	.21	10.43	5.10
N	1.46	2.47	1.62	.21	.00	5.76	3.55
CALM						.00	
TOTAL	32.15	45.24	19.42	2.98	.21	100.00	3.09

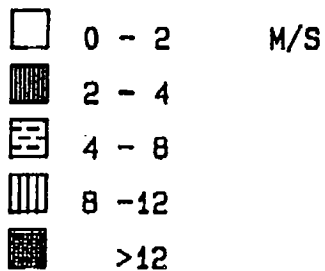
NUMBERS BELOW BASED ON ALL OBSERVATIONS

NUMBER OF INVALID OBSERVATIONS = 66

NUMBER OF VALID OBSERVATIONS = 4326



WIND SPEED RANGE



LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 2 - 1987/1988

WINTER (OCTOBER - MARCH)
WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1988 THROUGH MAY 31, 1989
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	91	181	41	0	0	313	2.74
NE	153	212	63	0	0	428	2.63
ENE	191	340	114	2	0	647	2.83
E	198	583	251	5	1	1038	3.14
ESE	189	468	123	2	0	782	2.86
SE	171	235	84	0	0	490	2.77
SSE	139	231	305	11	0	686	3.78
S	140	306	420	100	19	985	4.72
SSW	113	218	233	141	15	720	5.15
SW	68	100	112	40	8	328	4.66
WSW	68	111	24	5	0	208	2.78
W	78	95	16	2	1	192	2.50
WNW	76	94	28	3	0	201	2.74
NW	69	207	180	19	2	477	3.93
NNW	61	243	280	34	0	618	4.35
N	83	192	75	2	0	352	3.07
CALM						0	
TOTAL	1888	3816	2349	366	46	8465	3.59

NUMBERS BELOW BASED ON ALL OBSERVATIONS

NUMBER OF INVALID OBSERVATIONS = 295

NUMBER OF VALID OBSERVATIONS = 8465

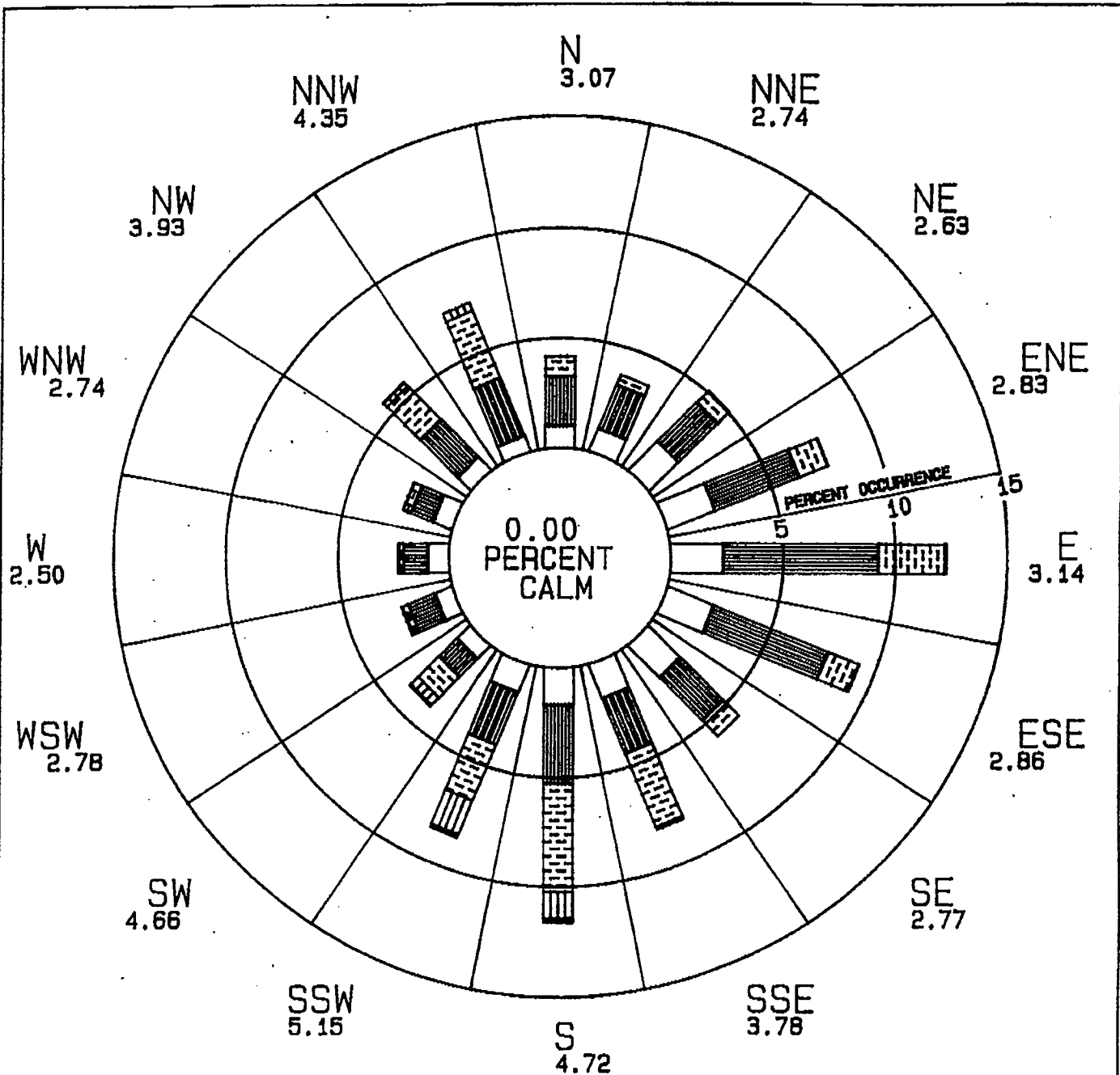
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1988 THROUGH MAY 31, 1989
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	1.08	2.14	.48	.00	.00	3.70	2.74
NE	1.81	2.50	.74	.00	.00	5.06	2.63
ENE	2.26	4.02	1.35	.02	.00	7.64	2.83
E	2.34	6.89	2.97	.06	.01	12.26	3.14
ESE	2.23	5.53	1.45	.02	.00	9.24	2.86
SE	2.02	2.78	.99	.00	.00	5.79	2.77
SSE	1.64	2.73	3.60	.13	.00	8.10	3.78
S	1.65	3.61	4.96	1.18	.22	11.64	4.72
SSW	1.33	2.58	2.75	1.67	.18	8.51	5.15
SW	.80	1.18	1.32	.47	.09	3.87	4.66
WSW	.80	1.31	.28	.06	.00	2.46	2.78
W	.92	1.12	.19	.02	.01	2.27	2.50
WNW	.90	1.11	.33	.04	.00	2.37	2.74
NW	.82	2.45	2.13	.22	.02	5.63	3.93
NNW	.72	2.87	3.31	.40	.00	7.30	4.35
N	.98	2.27	.89	.02	.00	4.16	3.07
CALM						.00	
TOTAL	22.30	45.08	27.75	4.32	.54	100.00	3.59

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 295
NUMBER OF VALID OBSERVATIONS = 8465



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE

	0 - 2	M/S
	2 - 4	
	4 - 8	
	8 - 12	
	>12	

LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 2 - ANNUAL 1988 - 1989

WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	33	102	38	0	0	173	3.11
NE	37	122	55	0	0	214	3.16
ENE	52	156	75	1	0	284	3.23
E	51	233	125	3	1	413	3.44
ESE	43	175	62	1	0	281	3.13
SE	45	102	60	0	0	207	3.27
SSE	30	120	209	6	0	365	4.25
S	42	164	270	35	1	512	4.61
SSW	36	141	191	98	7	473	5.53
SW	15	70	82	35	8	210	5.47
WSW	14	80	23	3	0	120	3.35
W	24	60	15	2	1	102	3.04
WNW	21	70	23	2	0	116	3.22
NW	21	107	114	4	0	246	4.00
NNW	19	96	104	16	0	235	4.44
N	17	112	56	1	0	186	3.53
CALM						0	
TOTAL	500	1910	1502	207	18	4137	4.00

NUMBERS BELOW BASED ON ALL OBSERVATIONS

NUMBER OF INVALID OBSERVATIONS = 255

NUMBER OF VALID OBSERVATIONS = 4137

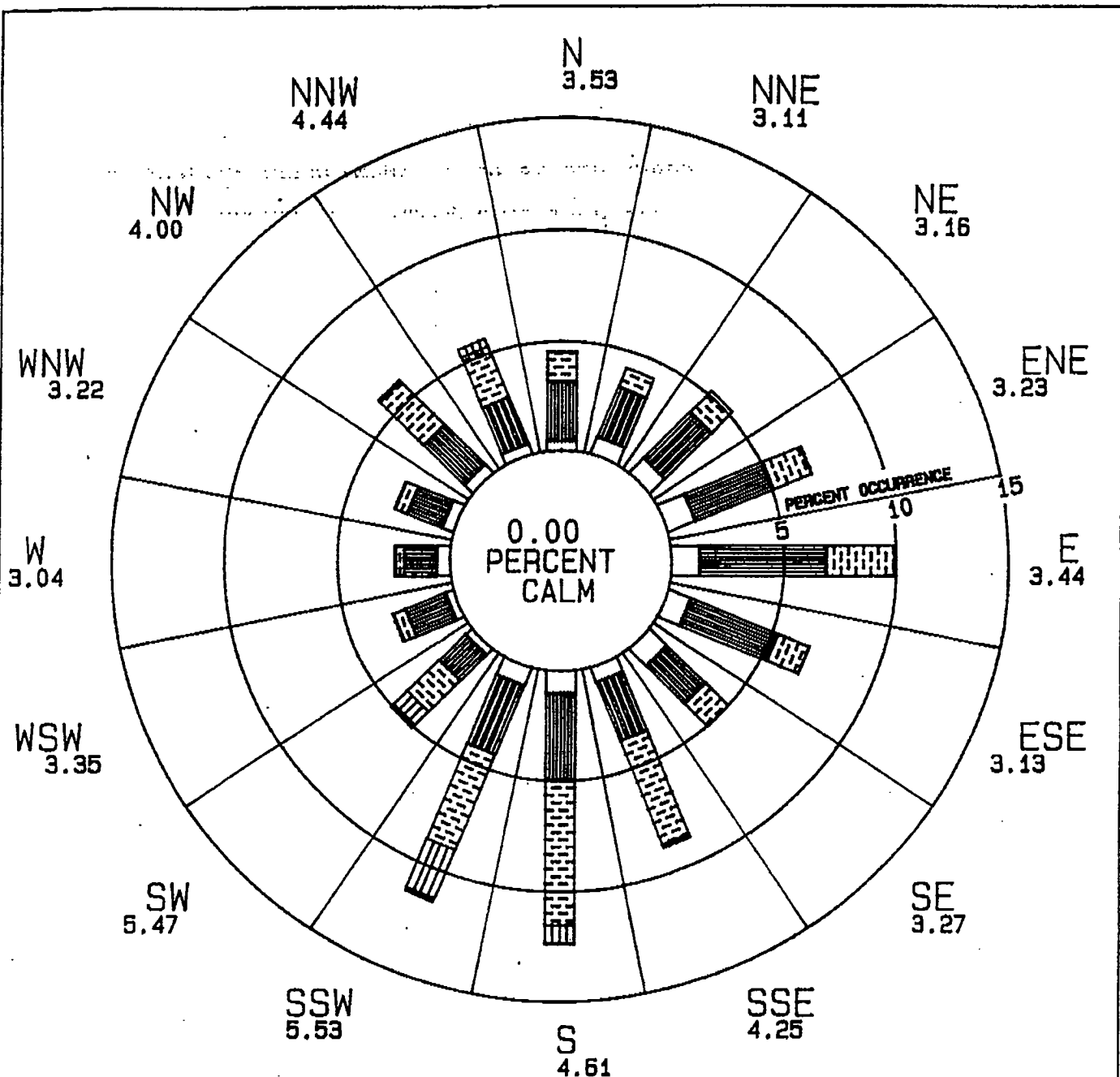
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.80	2.47	.92	.00	.00	4.18	3.11
NE	.89	2.95	1.33	.00	.00	5.17	3.16
ENE	1.26	3.77	1.81	.02	.00	6.86	3.23
E	1.23	5.63	3.02	.07	.02	9.98	3.44
ESE	1.04	4.23	1.50	.02	.00	6.79	3.13
SE	1.09	2.47	1.45	.00	.00	5.00	3.27
SSE	.73	2.90	5.05	.15	.00	8.82	4.25
S	1.02	3.96	6.53	.85	.02	12.38	4.61
SSW	.87	3.41	4.62	2.37	.17	11.43	5.53
SW	.36	1.69	1.98	.85	.19	5.08	5.47
WSW	.34	1.93	.56	.07	.00	2.90	3.35
W	.58	1.45	.36	.05	.02	2.47	3.04
WNW	.51	1.69	.56	.05	.00	2.80	3.22
NW	.51	2.59	2.76	.10	.00	5.95	4.00
NNW	.46	2.32	2.51	.39	.00	5.68	4.44
N	.41	2.71	1.35	.02	.00	4.50	3.53
CALM						.00	
TOTAL	12.09	46.17	36.31	5.00	.44	100.00	4.00

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 255
NUMBER OF VALID OBSERVATIONS = 4137



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE

	0 - 2	M/S
	2 - 4	
	4 - 8	
	8 - 12	
	>12	

LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 2 - 1988/1989

SUMMER (APRIL - SEPTEMBER)
WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1988 THROUGH MAR 31, 1989
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	58	79	3	0	0	140	2.28
NE	116	90	8	0	0	214	2.09
ENE	139	184	39	1	0	363	2.52
E	147	350	126	2	0	625	2.95
ESE	146	293	61	1	0	501	2.71
SE	126	133	24	0	0	283	2.41
SSE	109	111	96	5	0	321	3.24
S	98	142	150	65	18	473	4.84
SSW	77	77	42	43	8	247	4.41
SW	53	30	30	5	0	118	3.22
WSW	54	31	1	2	0	88	2.01
W	54	35	1	0	0	90	1.89
WNW	55	24	5	1	0	85	2.09
NW	48	100	66	15	2	231	3.85
NNW	42	147	176	18	0	383	4.30
N	66	80	19	1	0	166	2.56
CALM						0	
TOTAL	1388	1906	847	159	28	4328	3.20

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 40
NUMBER OF VALID OBSERVATIONS = 4328

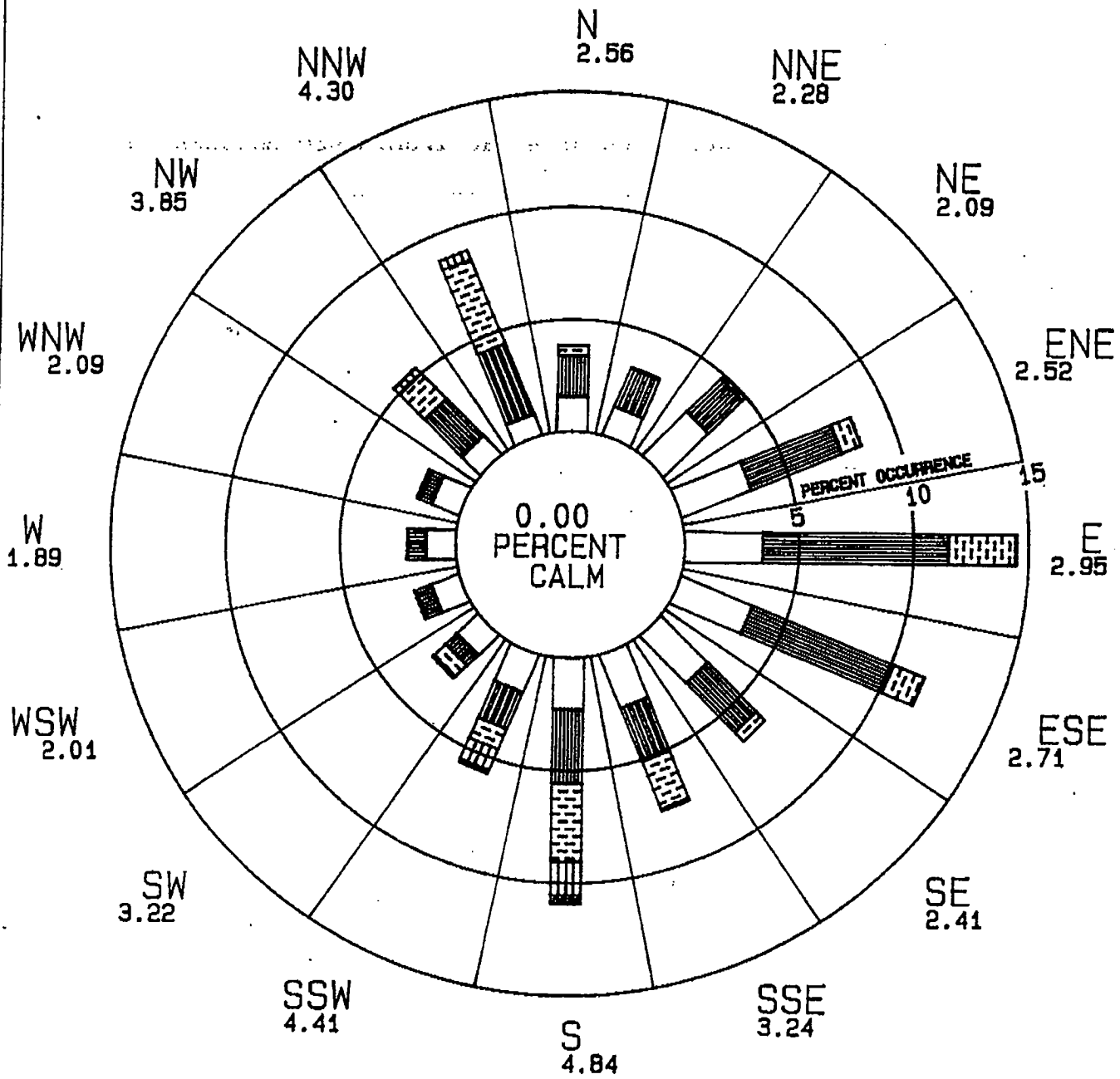
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 2
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1988 THROUGH MAR 31, 1989
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

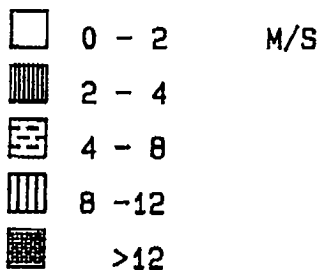
WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	1.34	1.83	.07	.00	.00	3.23	2.28
NE	2.68	2.08	.18	.00	.00	4.94	2.09
ENE	3.21	4.25	.90	.02	.00	8.39	2.52
E	3.40	8.09	2.91	.05	.00	14.44	2.95
ESE	3.37	6.77	1.41	.02	.00	11.58	2.71
SE	2.91	3.07	.55	.00	.00	6.54	2.41
SSE	2.52	2.56	2.22	.12	.00	7.42	3.24
S	2.26	3.28	3.47	1.50	.42	10.93	4.84
SSW	1.78	1.78	.97	.99	.18	5.71	4.41
SW	1.22	.69	.69	.12	.00	2.73	3.22
WSW	1.25	.72	.02	.05	.00	2.03	2.01
W	1.25	.81	.02	.00	.00	2.08	1.89
WNW	1.27	.55	.12	.02	.00	1.96	2.09
NW	1.11	2.31	1.52	.35	.05	5.34	3.85
NNW	.97	3.40	4.07	.42	.00	8.85	4.30
N	1.52	1.85	.44	.02	.00	3.84	2.56
CALM						.00	
TOTAL	32.07	44.04	19.57	3.67	.65	100.00	3.20

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 40
NUMBER OF VALID OBSERVATIONS = 4328



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE



LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 2 - 1988/1989

WINTER (OCTOBER - MARCH)
WIND FREQUENCY DISTRIBUTION

APPENDIX 2

TABULAR METEOROLOGICAL JOINT FREQUENCY DISTRIBUTIONS
AND METEOROLOGICAL JOINT FREQUENCY DISTRIBUTION PLOTS
FOR SITE 3

36.26/50-AP1-C1

IP11_001856

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1986 THROUGH MAY 31, 1987
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	16	6	1	0	0	23	1.84
NE	18	68	49	1	0	136	3.58
ENE	102	846	765	1	0	1714	3.81
E	304	1145	935	1	0	2385	3.59
ESE	110	183	126	0	0	419	3.20
SE	25	44	32	0	0	101	3.16
SSE	24	22	5	1	0	52	2.50
S	17	21	1	0	0	39	2.22
SSW	41	47	12	0	0	100	2.56
SW	65	187	118	5	0	375	3.48
WSW	163	670	613	118	7	1571	4.38
W	130	444	326	26	0	926	3.77
WNW	36	69	1	0	0	106	2.33
NW	9	17	1	0	0	27	2.22
NNW	9	5	0	0	0	14	1.64
N	8	6	2	0	0	16	2.41
CALM						0	
TOTAL	1077	3780	2987	153	7	8004	3.72

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 756
NUMBER OF VALID OBSERVATIONS = 8004

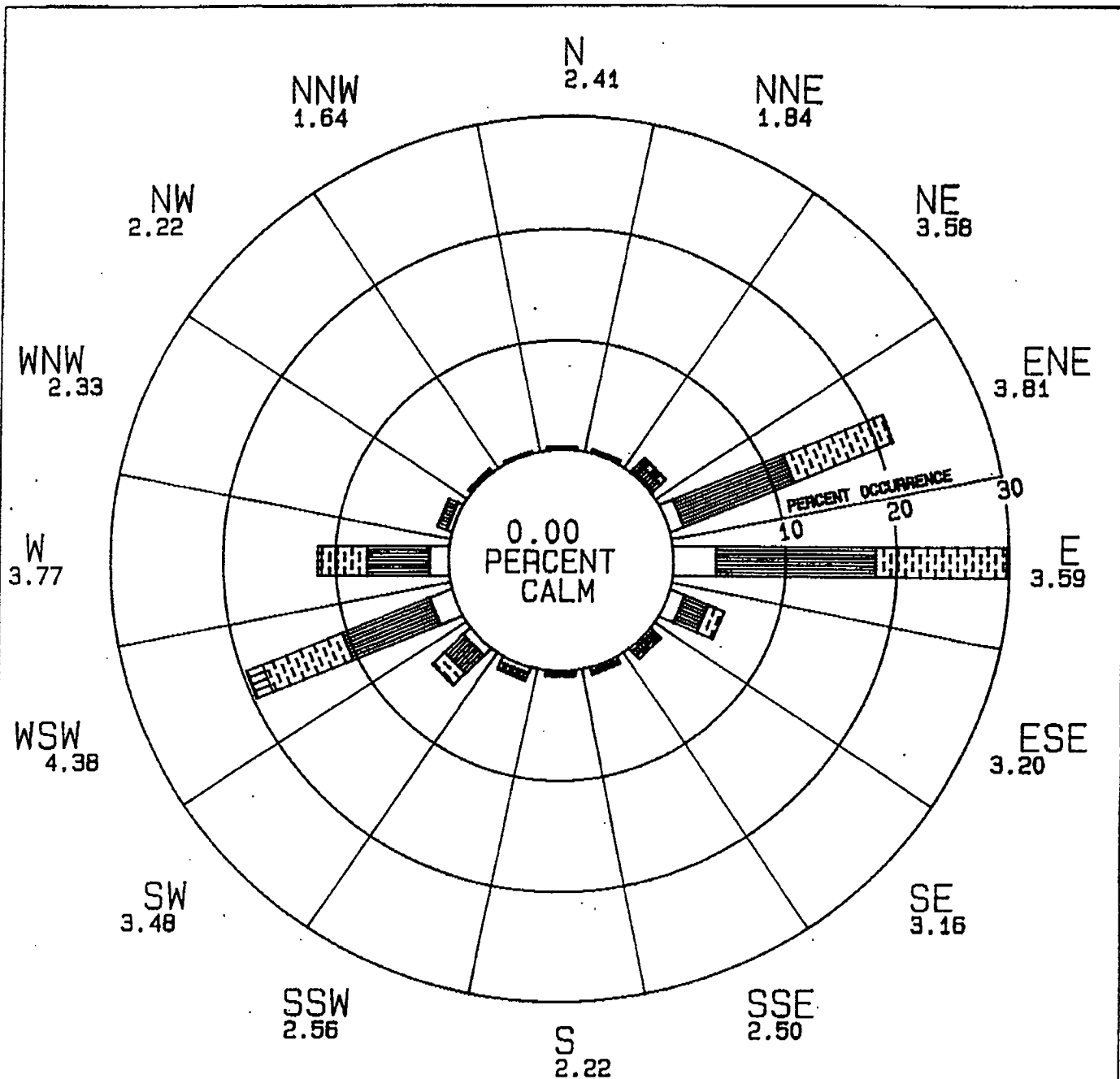
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1986 THROUGH MAY 31, 1987
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.20	.07	.01	.00	.00	.29	1.84
NE	.22	.85	.61	.01	.00	1.70	3.58
ENE	1.27	10.57	9.56	.01	.00	21.41	3.81
E	3.80	14.31	11.68	.01	.00	29.80	3.59
ESE	1.37	2.29	1.57	.00	.00	5.23	3.20
SE	.31	.55	.40	.00	.00	1.26	3.16
SSE	.30	.27	.06	.01	.00	.65	2.50
S	.21	.26	.01	.00	.00	.49	2.22
SSW	.51	.59	.15	.00	.00	1.25	2.56
SW	.81	2.34	1.47	.06	.00	4.69	3.48
WSW	2.04	8.37	7.66	1.47	.09	19.63	4.38
W	1.62	5.55	4.07	.32	.00	11.57	3.77
WNW	.45	.86	.01	.00	.00	1.32	2.33
NW	.11	.21	.01	.00	.00	.34	2.22
NNW	.11	.06	.00	.00	.00	.17	1.64
N	.10	.07	.02	.00	.00	.20	2.41
CALM						.00	
TOTAL	13.46	47.23	37.32	1.91	.09	100.00	3.72

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 756
NUMBER OF VALID OBSERVATIONS = 8004



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE

	0 - 2	M/S
	2 - 4	
	4 - 8	
	8 - 12	
	>12	

LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 3 - ANNUAL 1986 - 1987

WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	7	3	1	0	0	11	2.35
NE	3	32	28	0	0	63	3.77
ENE	29	383	406	0	0	818	3.95
E	77	443	468	1	0	989	3.88
ESE	22	72	68	0	0	162	3.62
SE	7	27	24	0	0	58	3.59
SSE	11	12	2	1	0	26	2.78
S	7	8	1	0	0	16	2.65
SSW	16	42	10	0	0	68	2.90
SW	21	108	61	4	0	194	3.59
WSW	33	284	474	82	7	880	5.12
W	43	243	227	15	0	528	4.05
WNW	13	34	0	0	0	47	2.44
NW	4	9	1	0	0	14	2.46
NNW	2	2	0	0	0	4	1.81
N	1	1	2	0	0	4	3.24
CALM						0	
TOTAL	296	1703	1773	103	7	3882	4.11

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 510
NUMBER OF VALID OBSERVATIONS = 3882

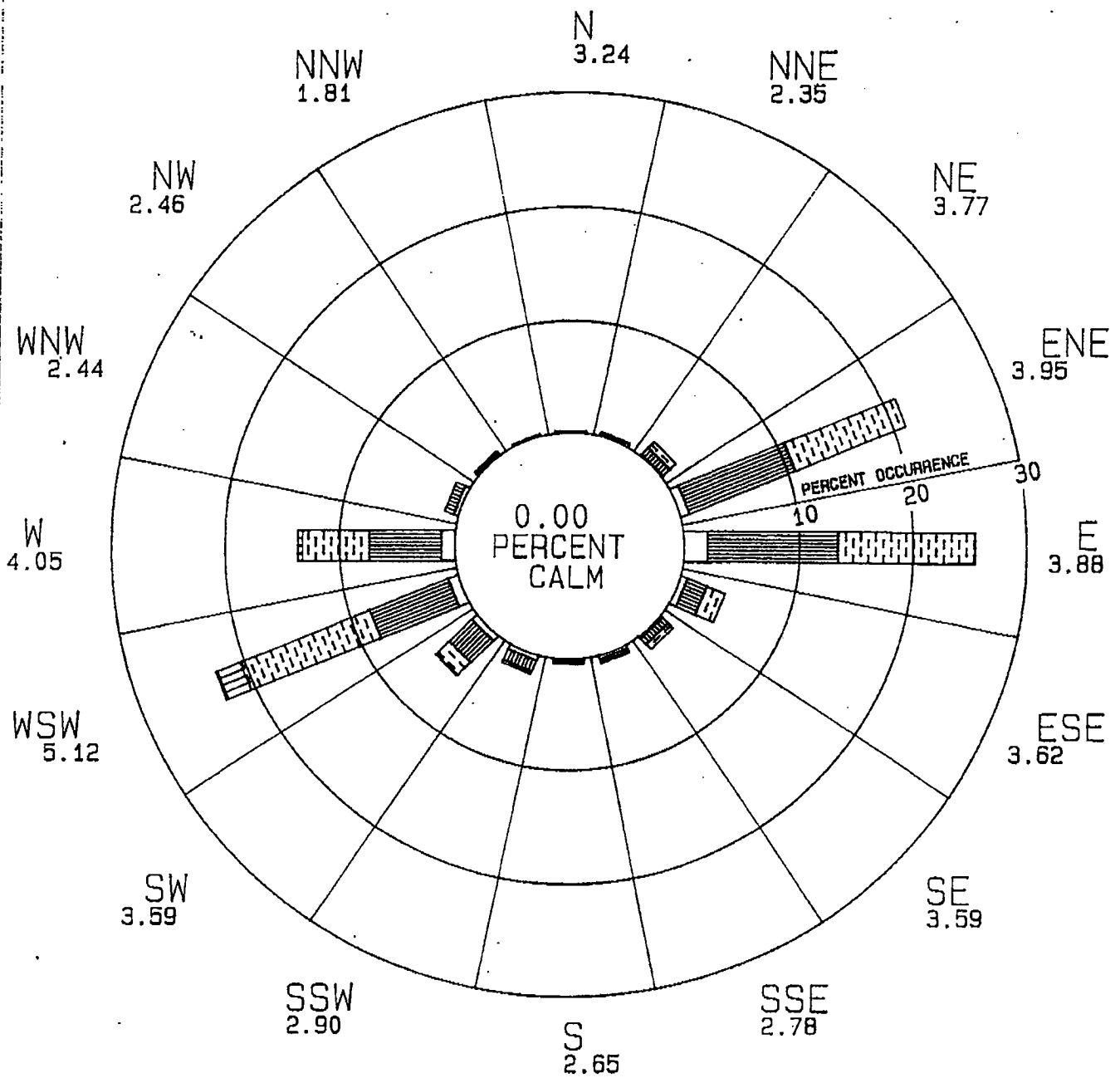
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.18	.08	.03	.00	.00	.28	2.35
NE	.08	.82	.72	.00	.00	1.62	3.77
ENE	.75	9.87	10.46	.00	.00	21.07	3.95
E	1.98	11.41	12.06	.03	.00	25.48	3.88
ESE	.57	1.85	1.75	.00	.00	4.17	3.62
SE	.18	.70	.62	.00	.00	1.49	3.59
SSE	.28	.31	.05	.03	.00	.67	2.78
S	.18	.21	.03	.00	.00	.41	2.65
SSW	.41	1.08	.26	.00	.00	1.75	2.90
SW	.54	2.78	1.57	.10	.00	5.00	3.59
WSW	.85	7.32	12.21	2.11	.18	22.67	5.12
W	1.11	6.26	5.85	.39	.00	13.60	4.05
WNW	.33	.88	.00	.00	.00	1.21	2.44
NW	.10	.23	.03	.00	.00	.36	2.46
NNW	.05	.05	.00	.00	.00	.10	1.81
N	.03	.03	.05	.00	.00	.10	3.24
CALM						.00	
TOTAL	7.62	43.87	45.67	2.65	.18	100.00	4.11

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 510
NUMBER OF VALID OBSERVATIONS = 3882



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE

	0 - 2	M/S
	2 - 4	
	4 - 8	
	8 - 12	
	>12	

LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 3 - 1986/1987

SUMMER (APRIL - SEPTEMBER)
WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1986 THROUGH MAR 31, 1987
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	9	3	0	0	0	12	1.38
NE	15	36	21	1	0	73	3.40
ENE	73	463	359	1	0	896	3.69
E	227	702	467	0	0	1396	3.39
ESE	88	111	58	0	0	257	2.94
SE	18	17	8	0	0	43	2.59
SSE	13	10	3	0	0	26	2.23
S	10	13	0	0	0	23	1.92
SSW	25	5	2	0	0	32	1.84
SW	44	79	57	1	0	181	3.37
WSW	130	386	139	36	0	691	3.43
W	87	201	99	11	0	398	3.40
WNW	23	35	1	0	0	59	2.23
NW	5	8	0	0	0	13	1.96
NNW	7	3	0	0	0	10	1.58
N	7	5	0	0	0	12	2.14
CALM						0	
TOTAL	781	2077	1214	50	0	4122	3.36

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 246
NUMBER OF VALID OBSERVATIONS = 4122

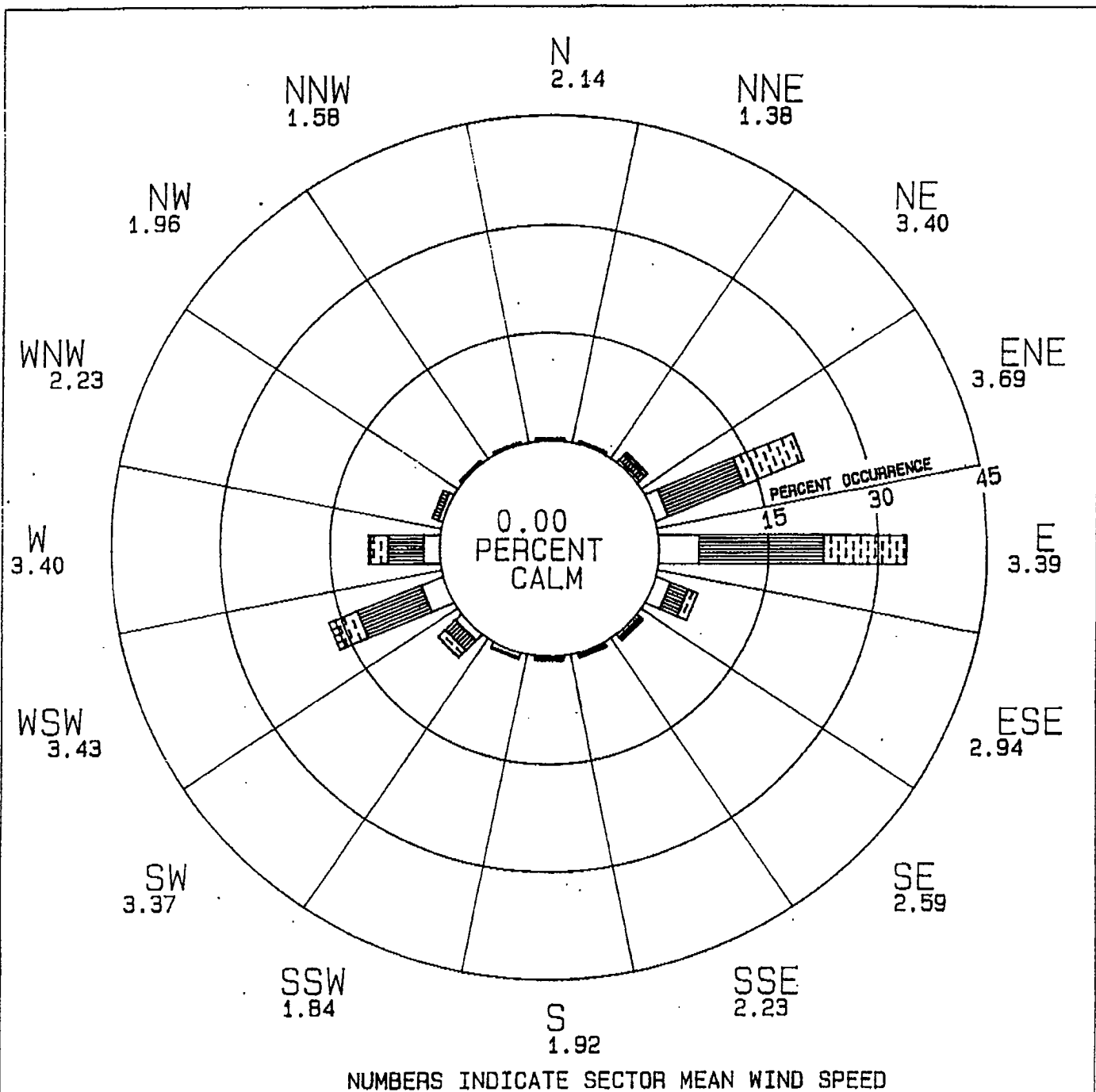
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1986 THROUGH MAR 31, 1987
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.22	.07	.00	.00	.00	.29	1.38
NE	.36	.87	.51	.02	.00	1.77	3.40
ENE	1.77	11.23	8.71	.02	.00	21.74	3.69
E	5.51	17.03	11.33	.00	.00	33.87	3.39
ESE	2.13	2.69	1.41	.00	.00	6.23	2.94
SE	.44	.41	.19	.00	.00	1.04	2.59
SSE	.32	.24	.07	.00	.00	.63	2.23
S	.24	.32	.00	.00	.00	.56	1.92
SSW	.61	.12	.05	.00	.00	.78	1.84
SW	1.07	1.92	1.38	.02	.00	4.39	3.37
WSW	3.15	9.36	3.37	.87	.00	16.76	3.43
W	2.11	4.88	2.40	.27	.00	9.66	3.40
WNW	.56	.85	.02	.00	.00	1.43	2.23
NW	.12	.19	.00	.00	.00	.32	1.96
NNW	.17	.07	.00	.00	.00	.24	1.58
N	.17	.12	.00	.00	.00	.29	2.14
CALM						.00	
TOTAL	18.95	50.39	29.45	1.21	.00	100.00	3.36

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 246
NUMBER OF VALID OBSERVATIONS = 4122



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE

	0 - 2	M/S
	2 - 4	
	4 - 8	
	8 - 12	
	>12	

LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 3 - 1986/1987

WINTER (OCTOBER - MARCH)
WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1987 THROUGH MAY 31, 1988
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	6	12	0	0	0	18	2.36
NE	18	84	52	0	0	154	3.44
ENE	163	1085	925	0	0	2173	3.75
E	227	552	729	7	0	1515	3.83
ESE	49	79	42	0	0	170	3.01
SE	20	29	32	1	0	82	3.56
SSE	20	15	3	0	0	38	2.12
S	13	19	3	0	0	35	2.35
SSW	28	45	26	1	0	100	3.09
SW	86	176	114	10	1	387	3.43
WSW	164	540	504	95	11	1314	4.37
W	69	266	144	1	0	480	3.49
WNW	14	31	1	0	0	46	2.34
NW	3	9	1	0	0	13	2.51
NNW	5	2	0	0	0	7	1.81
N	2	3	0	0	0	5	2.12
CALM						0	
TOTAL	887	2947	2576	115	12	6537	3.78

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 2247
NUMBER OF VALID OBSERVATIONS = 6537

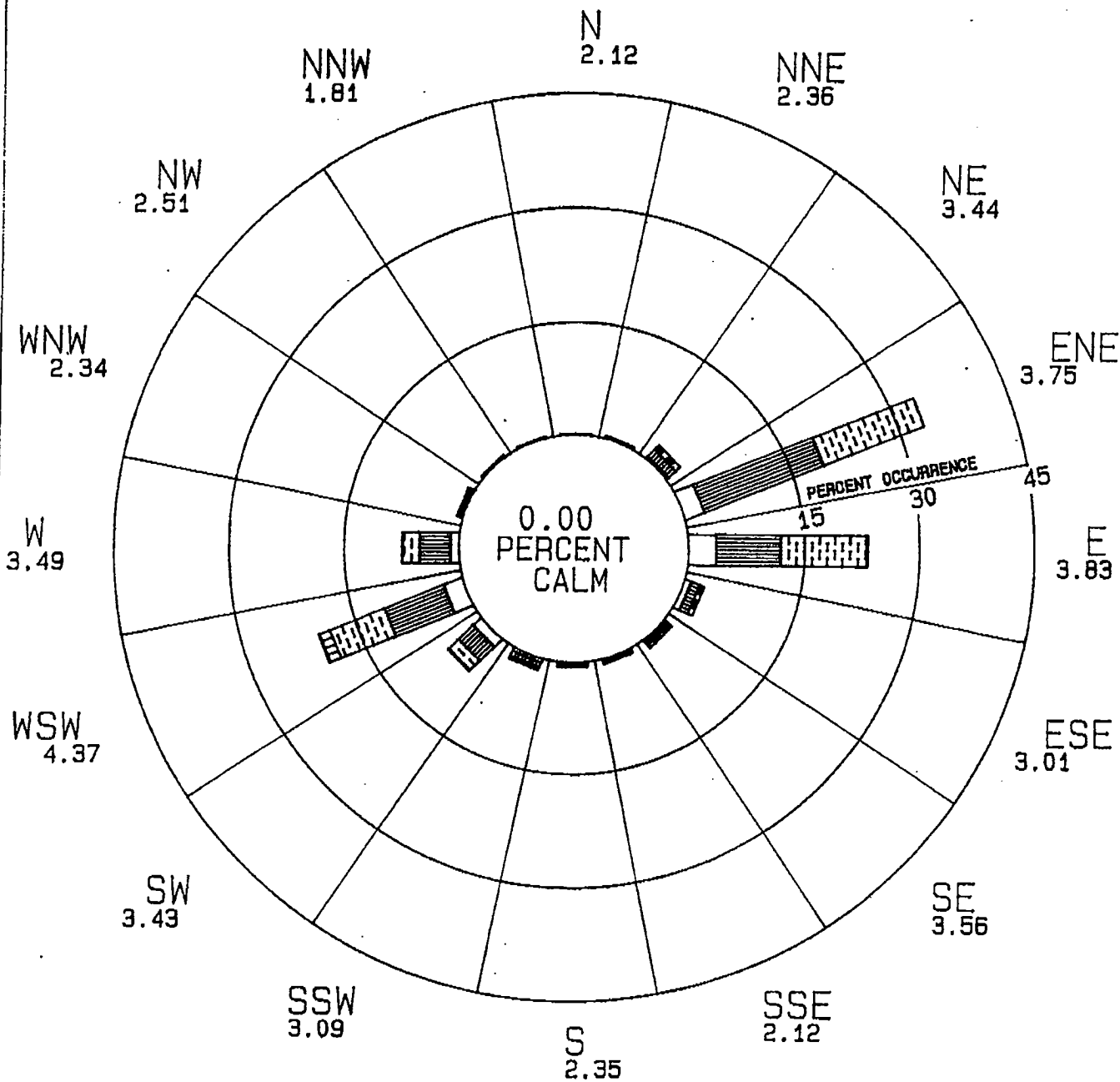
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1987 THROUGH MAY 31, 1988
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

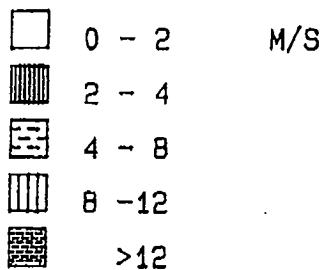
WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.09	.18	.00	.00	.00	.28	2.36
NE	.28	1.28	.80	.00	.00	2.36	3.44
ENE	2.49	16.60	14.15	.00	.00	33.24	3.75
E	3.47	8.44	11.15	.11	.00	23.18	3.83
ESE	.75	1.21	.64	.00	.00	2.60	3.01
SE	.31	.44	.49	.02	.00	1.25	3.56
SSE	.31	.23	.05	.00	.00	.58	2.12
S	.20	.29	.05	.00	.00	.54	2.35
SSW	.43	.69	.40	.02	.00	1.53	3.09
SW	1.32	2.69	1.74	.15	.02	5.92	3.43
WSW	2.51	8.26	7.71	1.45	.17	20.10	4.37
W	1.06	4.07	2.20	.02	.00	7.34	3.49
WNW	.21	.47	.02	.00	.00	.70	2.34
NW	.05	.14	.02	.00	.00	.20	2.51
NNW	.08	.03	.00	.00	.00	.11	1.81
N	.03	.05	.00	.00	.00	.08	2.12
CALM						.00	
TOTAL	13.57	45.08	39.41	1.76	.18	100.00	3.78

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 2247
NUMBER OF VALID OBSERVATIONS = 6537



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE



LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 3 - ANNUAL 1987 - 1988

WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	1	7	0	0	0	8	2.73
NE	3	25	26	0	0	54	3.80
ENE	23	400	443	0	0	866	3.98
E	32	212	352	0	0	596	4.15
ESE	9	42	21	0	0	72	3.44
SE	5	23	28	1	0	57	4.12
SSE	2	10	3	0	0	15	2.96
S	4	12	3	0	0	19	2.88
SSW	5	34	18	0	0	57	3.45
SW	15	80	70	2	0	167	3.86
WSW	25	286	408	79	5	803	5.08
W	19	150	114	1	0	284	3.90
WNW	3	19	1	0	0	23	2.63
NW	1	6	1	0	0	8	2.63
NNW	3	2	0	0	0	5	1.91
N	0	2	0	0	0	2	2.79
CALM						0	
TOTAL	150	1310	1488	83	5	3036	4.23

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 1356
NUMBER OF VALID OBSERVATIONS = 3036

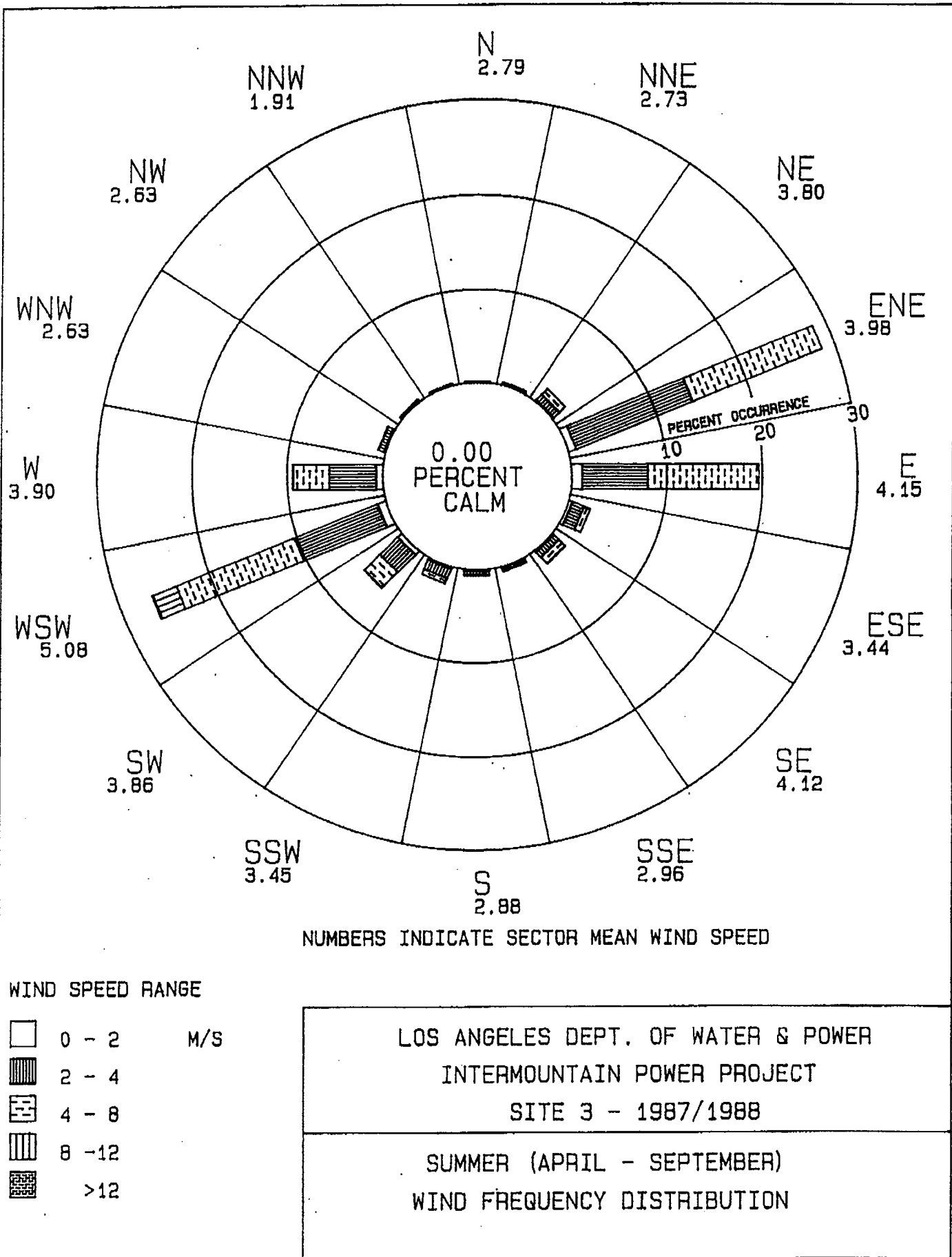
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.03	.23	.00	.00	.00	.26	2.73
NE	.10	.82	.86	.00	.00	1.78	3.80
ENE	.76	13.18	14.59	.00	.00	28.52	3.98
E	1.05	6.98	11.59	.00	.00	19.63	4.15
ESE	.30	1.38	.69	.00	.00	2.37	3.44
SE	.16	.76	.92	.03	.00	1.88	4.12
SSE	.07	.33	.10	.00	.00	.49	2.96
S	.13	.40	.10	.00	.00	.63	2.88
SSW	.16	1.12	.59	.00	.00	1.88	3.45
SW	.49	2.64	2.31	.07	.00	5.50	3.86
WSW	.82	9.42	13.44	2.60	.16	26.45	5.08
W	.63	4.94	3.75	.03	.00	9.35	3.90
WNW	.10	.63	.03	.00	.00	.76	2.63
NW	.03	.20	.03	.00	.00	.26	2.63
NNW	.10	.07	.00	.00	.00	.16	1.91
N	.00	.07	.00	.00	.00	.07	2.79
CALM						.00	
TOTAL	4.94	43.15	49.01	2.73	.16	100.00	4.23

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 1356
NUMBER OF VALID OBSERVATIONS = 3036



LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1987 THROUGH MAR 31, 1988
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	5	5	0	0	0	10	2.07
NE	15	59	26	0	0	100	3.24
ENE	140	685	482	0	0	1307	3.60
E	195	340	377	7	0	919	3.63
ESE	40	37	21	0	0	98	2.69
SE	15	6	4	0	0	25	2.28
SSE	18	5	0	0	0	23	1.58
S	9	7	0	0	0	16	1.73
SSW	23	11	8	1	0	43	2.61
SW	71	96	44	8	1	220	3.11
WSW	139	254	96	16	6	511	3.25
W	50	116	30	0	0	196	2.89
WNW	11	12	0	0	0	23	2.05
NW	2	3	0	0	0	5	2.32
NNW	2	0	0	0	0	2	1.57
N	2	1	0	0	0	3	1.67
CALM						0	
TOTAL	737	1637	1088	32	7	3501	3.39

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 891
NUMBER OF VALID OBSERVATIONS = 3501

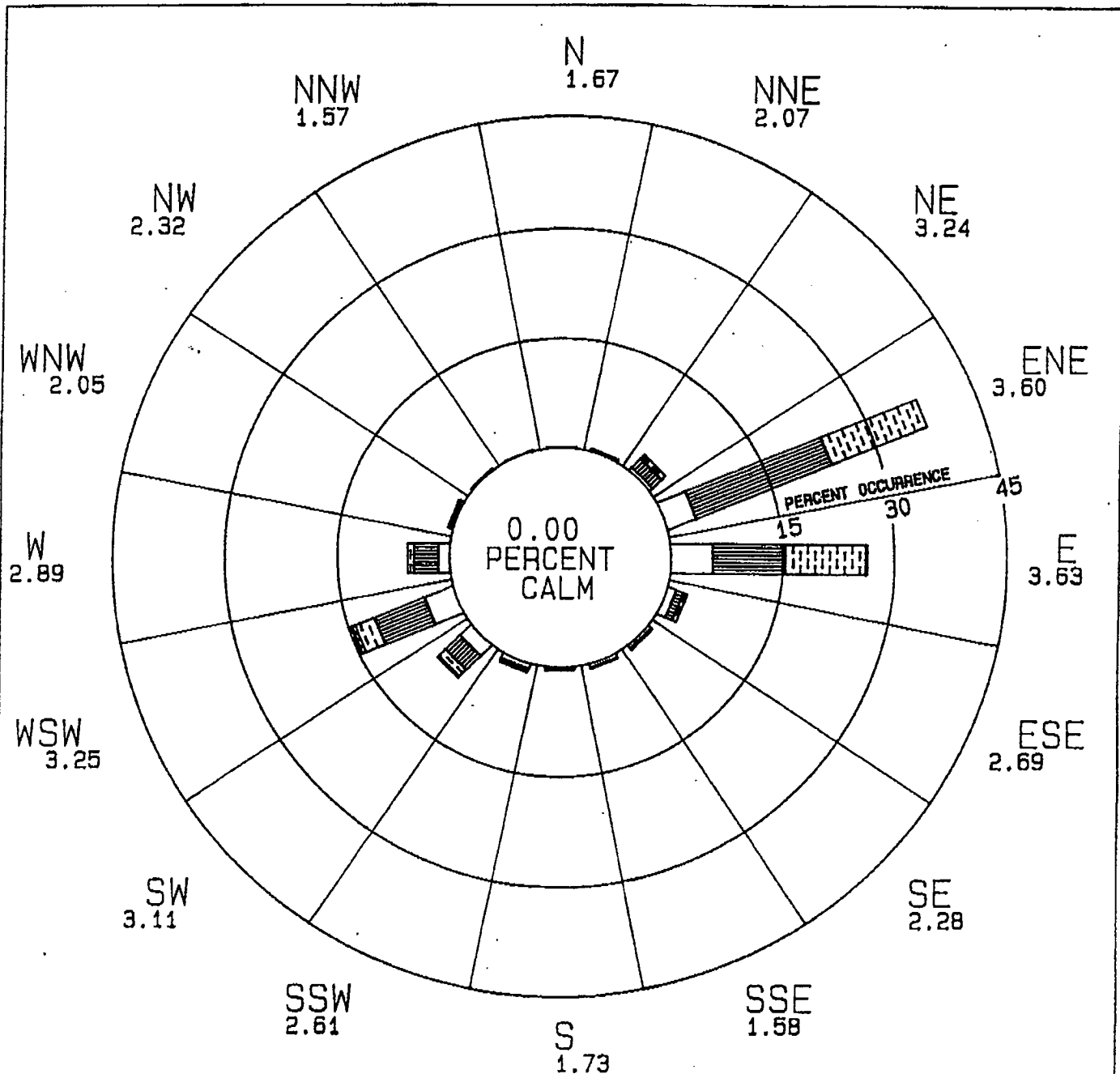
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1987 THROUGH MAR 31, 1988
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.14	.14	.00	.00	.00	.29	2.07
NE	.43	1.69	.74	.00	.00	2.86	3.24
ENE	4.00	19.57	13.77	.00	.00	37.33	3.60
E	5.57	9.71	10.77	.20	.00	26.25	3.63
ESE	1.14	1.06	.60	.00	.00	2.80	2.69
SE	.43	.17	.11	.00	.00	.71	2.28
SSE	.51	.14	.00	.00	.00	.66	1.58
S	.26	.20	.00	.00	.00	.46	1.73
SSW	.66	.31	.23	.03	.00	1.23	2.61
SW	2.03	2.74	1.26	.23	.03	6.28	3.11
WSW	3.97	7.26	2.74	.46	.17	14.60	3.25
W	1.43	3.31	.86	.00	.00	5.60	2.89
WNW	.31	.34	.00	.00	.00	.66	2.05
NW	.06	.09	.00	.00	.00	.14	2.32
NNW	.06	.00	.00	.00	.00	.06	1.57
N	.06	.03	.00	.00	.00	.09	1.67
CALM						.00	
TOTAL	21.05	46.76	31.08	.91	.20	100.00	3.39

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 891
NUMBER OF VALID OBSERVATIONS = 3501



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE

	0 - 2	M/S
	2 - 4	
	4 - 8	
	8 - 12	
	>12	

LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 3 - 1987/1988

WINTER (OCTOBER - MARCH)
WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1988 THROUGH MAY 31, 1989
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	6	4	3	0	0	13	2.61
NE	19	67	43	1	0	130	3.52
ENE	121	1077	884	0	0	2082	3.79
E	277	992	996	2	0	2267	3.74
ESE	75	136	75	0	0	286	3.08
SE	25	25	28	0	0	78	3.26
SSE	16	19	5	0	0	40	2.52
S	34	19	2	0	0	55	1.95
SSW	23	71	13	0	0	107	2.82
SW	96	261	160	7	0	524	3.47
WSW	246	822	865	235	32	2200	4.75
W	90	404	225	16	0	735	3.64
WNW	20	55	4	0	0	79	2.47
NW	5	10	0	0	0	15	2.12
NNW	9	8	0	0	0	17	1.75
N	11	6	0	0	0	17	1.76
CALM						0	
TOTAL	1073	3976	3303	261	32	8645	3.90

NUMBERS BELOW BASED ON ALL OBSERVATIONS

NUMBER OF INVALID OBSERVATIONS = 115

NUMBER OF VALID OBSERVATIONS = 8645

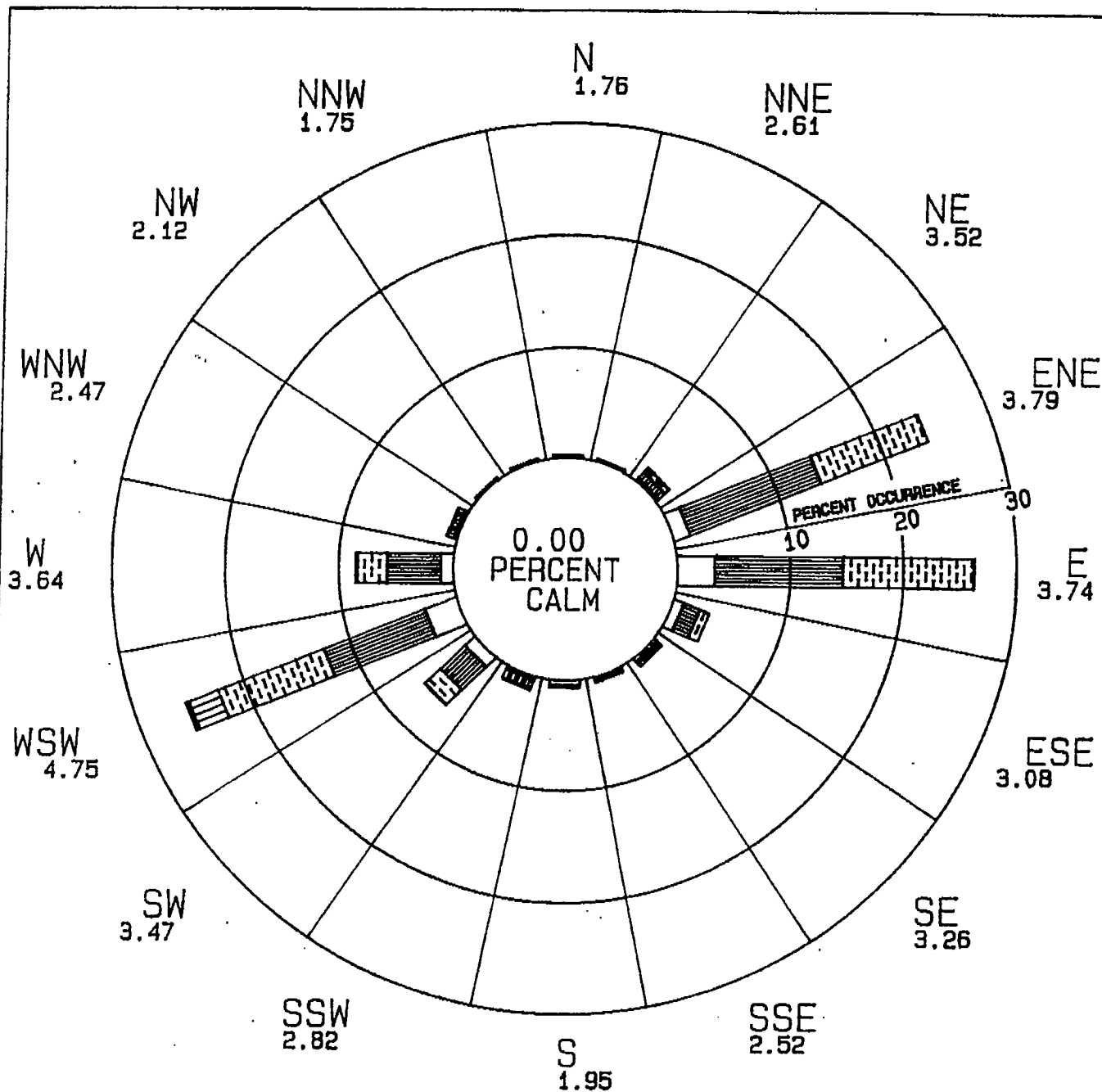
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - JUN 1, 1988 THROUGH MAY 31, 1989
MONTHS CONSIDERED - JUN THROUGH MAY
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

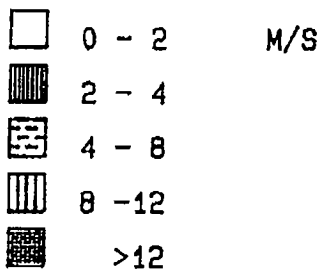
WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.07	.05	.03	.00	.00	.15	2.61
NE	.22	.78	.50	.01	.00	1.50	3.52
ENE	1.40	12.46	10.23	.00	.00	24.08	3.79
E	3.20	11.47	11.52	.02	.00	26.22	3.74
ESE	.87	1.57	.87	.00	.00	3.31	3.08
SE	.29	.29	.32	.00	.00	.90	3.26
SSE	.19	.22	.06	.00	.00	.46	2.52
S	.39	.22	.02	.00	.00	.64	1.95
SSW	.27	.82	.15	.00	.00	1.24	2.82
SW	1.11	3.02	1.85	.08	.00	6.06	3.47
WSW	2.85	9.51	10.01	2.72	.37	25.45	4.75
W	1.04	4.67	2.60	.19	.00	8.50	3.64
WNW	.23	.64	.05	.00	.00	.91	2.47
NW	.06	.12	.00	.00	.00	.17	2.12
NNW	.10	.09	.00	.00	.00	.20	1.75
N	.13	.07	.00	.00	.00	.20	1.76
CALM						.00	
TOTAL	12.41	45.99	38.21	3.02	.37	100.00	3.90

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 115
NUMBER OF VALID OBSERVATIONS = 8645



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE



LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 3 - ANNUAL 1988 - 1989

WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	2	2	3	0	0	7	3.40
NE	9	31	26	0	0	66	3.62
ENE	60	554	385	0	0	999	3.71
E	92	518	411	1	0	1022	3.70
ESE	16	65	33	0	0	114	3.37
SE	7	14	24	0	0	45	3.86
SSE	7	12	3	0	0	22	2.67
S	9	16	2	0	0	27	2.51
SSW	2	53	6	0	0	61	3.05
SW	38	128	73	0	0	239	3.41
WSW	60	446	598	142	14	1260	5.08
W	37	239	156	10	0	442	3.85
WNW	12	30	1	0	0	43	2.43
NW	3	8	0	0	0	11	2.26
NNW	2	7	0	0	0	9	2.15
N	6	3	0	0	0	9	1.82
CALM						0	
TOTAL	362	2126	1721	153	14	4376	4.05

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 16
NUMBER OF VALID OBSERVATIONS = 4376

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

MONTHS CONSIDERED - APR THROUGH SEP
HOURS CONSIDERED - 0 TO 2400

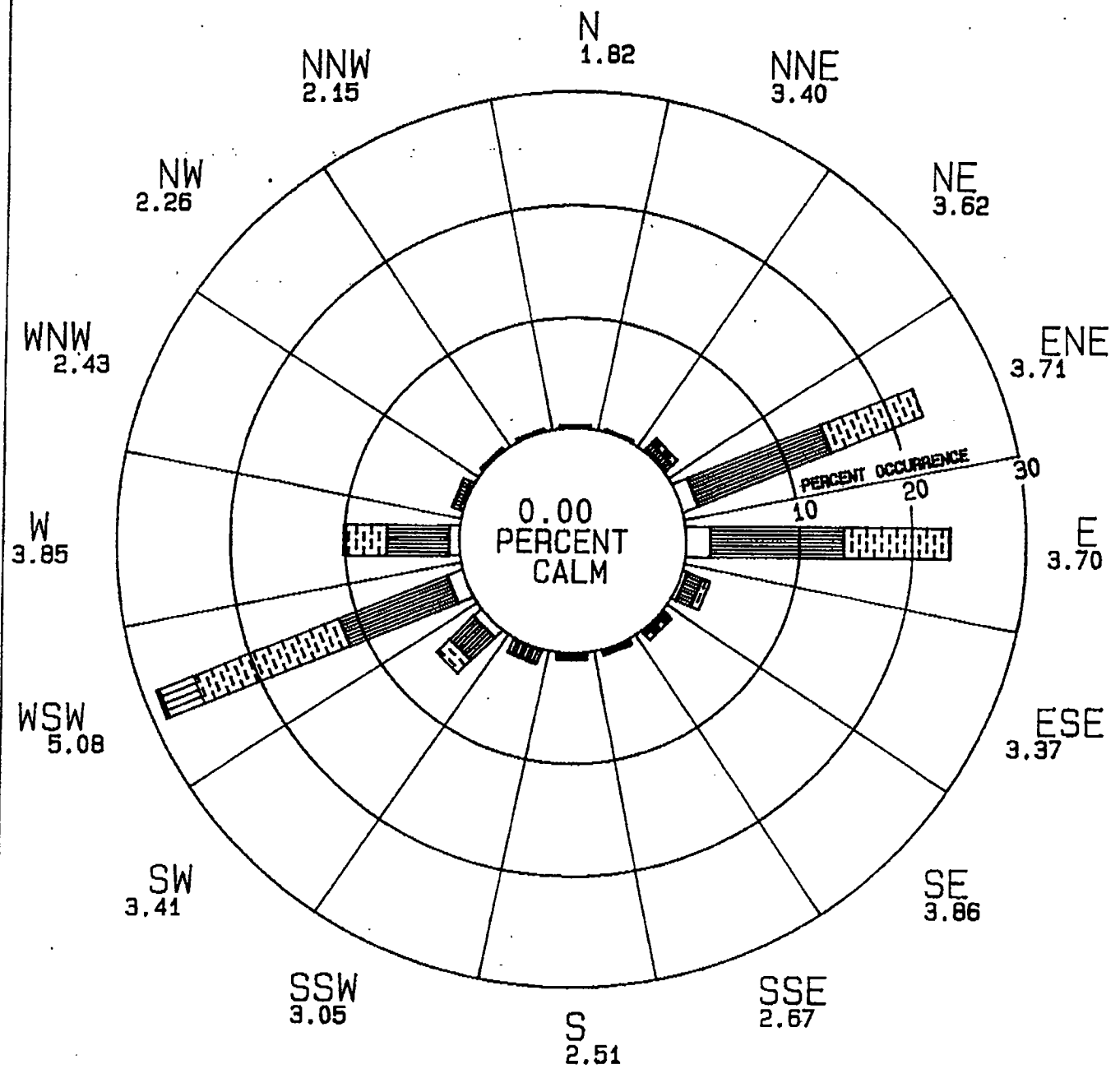
WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.05	.05	.07	.00	.00	.16	3.40
NE	.21	.71	.59	.00	.00	1.51	3.62
ENE	1.37	12.66	8.80	.00	.00	22.83	3.71
E	2.10	11.84	9.39	.02	.00	23.35	3.70
ESE	.37	1.49	.75	.00	.00	2.61	3.37
SE	.16	.32	.55	.00	.00	1.03	3.86
SSE	.16	.27	.07	.00	.00	.50	2.67
S	.21	.37	.05	.00	.00	.62	2.51
SSW	.05	1.21	.14	.00	.00	1.39	3.05
SW	.87	2.93	1.67	.00	.00	5.46	3.41
WSW	1.37	10.19	13.67	3.24	.32	28.79	5.08
W	.85	5.46	3.56	.23	.00	10.10	3.85
WNW	.27	.69	.02	.00	.00	.98	2.43
NW	.07	.18	.00	.00	.00	.25	2.26
NNW	.05	.16	.00	.00	.00	.21	2.15
N	.14	.07	.00	.00	.00	.21	1.82
CALM						.00	
TOTAL	8.27	48.58	39.33	3.50	.32	100.00	4.05

NUMBERS BELOW BASED ON ALL OBSERVATIONS

NUMBER OF INVALID OBSERVATIONS = 16

NUMBER OF VALID OBSERVATIONS = 4376



LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 3 - 1988/1989

SUMMER (APRIL - SEPTEMBER)
WIND FREQUENCY DISTRIBUTION

LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1988 THROUGH MAR 31, 1989
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY BY NUMBER

WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	4	2	0	0	0	6	1.69
NE	10	36	17	1	0	64	3.43
ENE	61	523	499	0	0	1083	3.86
E	185	474	585	1	0	1245	3.78
ESE	59	71	42	0	0	172	2.88
SE	18	11	4	0	0	33	2.44
SSE	9	7	2	0	0	18	2.32
S	25	3	0	0	0	28	1.41
SSW	21	18	7	0	0	46	2.51
SW	58	133	87	7	0	285	3.52
WSW	186	376	267	93	18	940	4.29
W	53	165	69	6	0	293	3.32
WNW	8	25	3	0	0	36	2.53
NW	2	2	0	0	0	4	1.72
NNW	7	1	0	0	0	8	1.30
N	5	3	0	0	0	8	1.69
CALM						0	
TOTAL	711	1850	1582	108	18	4269	3.76

NUMBERS BELOW BASED ON ALL OBSERVATIONS

NUMBER OF INVALID OBSERVATIONS = 99

NUMBER OF VALID OBSERVATIONS = 4269

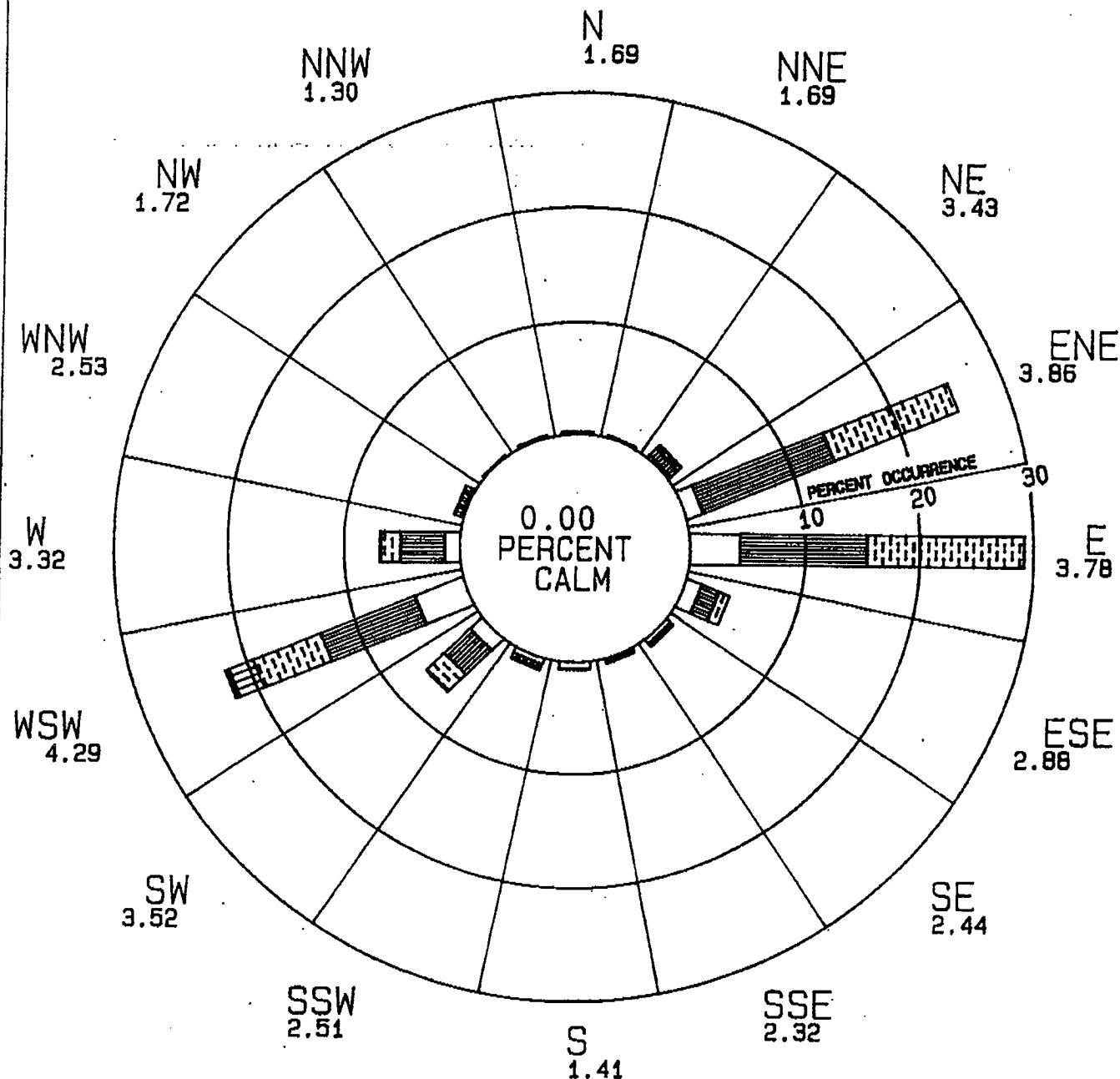
LOS ANGELES DEPARTMENT OF WATER AND POWER
INTERMOUNTAIN POWER PROJECT - SITE 3
WIND FREQUENCY DISTRIBUTION ANALYSIS

DATA PERIOD - OCT 1, 1988 THROUGH MAR 31, 1989
MONTHS CONSIDERED - OCT THROUGH MAR
HOURS CONSIDERED - 0 TO 2400

WIND FREQUENCY DISTRIBUTION
FREQUENCY IN PERCENT
OF TOTAL OBSERVATIONS

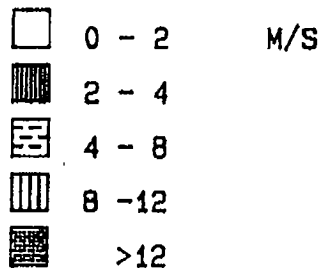
WIND SECTOR	WIND SPEED CLASS (MPS)					TOTAL	MEAN SPEED
	.23 TO 2.00	2.01 TO 4.00	4.01 TO 8.00	8.01 TO 12.00	GREATER THAN 12.00		
NNE	.09	.05	.00	.00	.00	.14	1.69
NE	.23	.84	.40	.02	.00	1.50	3.43
ENE	1.43	12.25	11.69	.00	.00	25.37	3.86
E	4.33	11.10	13.70	.02	.00	29.16	3.78
ESE	1.38	1.66	.98	.00	.00	4.03	2.88
SE	.42	.26	.09	.00	.00	.77	2.44
SSE	.21	.16	.05	.00	.00	.42	2.32
S	.59	.07	.00	.00	.00	.66	1.41
SSW	.49	.42	.16	.00	.00	1.08	2.51
SW	1.36	3.12	2.04	.16	.00	6.68	3.52
WSW	4.36	8.81	6.25	2.18	.42	22.02	4.29
W	1.24	3.87	1.62	.14	.00	6.86	3.32
WNW	.19	.59	.07	.00	.00	.84	2.53
NW	.05	.05	.00	.00	.00	.09	1.72
NNW	.16	.02	.00	.00	.00	.19	1.30
N	.12	.07	.00	.00	.00	.19	1.69
CALM						.00	
TOTAL	16.65	43.34	37.06	2.53	.42	100.00	3.76

NUMBERS BELOW BASED ON ALL OBSERVATIONS
NUMBER OF INVALID OBSERVATIONS = 99
NUMBER OF VALID OBSERVATIONS = 4269



NUMBERS INDICATE SECTOR MEAN WIND SPEED

WIND SPEED RANGE



LOS ANGELES DEPT. OF WATER & POWER
INTERMOUNTAIN POWER PROJECT
SITE 3 - 1988/1989

WINTER (OCTOBER - MARCH)
WIND FREQUENCY DISTRIBUTION